

THE ILLUSTRATED LONDON NEWS

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INSIDE A TRIPOD-MAST: SAILORS ON THEIR WAY TO THE CONTROL-TOP OF THE "SUPERB."

The men gain the control-top by climbing up the inside of the chief "leg" (here shown in section) and up the outside of the other legs. The tripod-masts are a feature of the "Dreadnought" type of ship. They are a revival of an idea of thirty-six years ago, when they were tried in two small British ironclads. The ill-fated "Captain," a turret-ship, which was the "Dreadnought" of 1869, was the first large war-ship to have tripod-masts. After her disastrous loss they were not seen at sea again until reintroduced in the "Dreadnought." In the "Dreadnought" class they are hollow tubes of steel, 3 ft. 6 in. in diameter for the principal "leg," of each tripod, and 3 ft. in diameter for the other two "legs." The centre "leg" affords a convenient means of access to the all-important control-tops in action. Down them pass also the electric leads communicating from the control-tops to the turrets and conning-tower. It is considered that two of the three "legs" of each tripod might be shot away and the control-top still stand, and be usable, guyed up in position and accessible through the remaining "leg." From the control-top the aim of the guns in the barbettes and batteries is directed.—[DRAWN BY S. BEGG.]

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OUR NAVAL SUPPLEMENT: THE GREAT NAVAL DISPLAY IN THE THAMES.

ONE of our Supplements this week deals with the history of the British Navy, in connection with the great naval pageant which is inaugurated to-day. The Home and Atlantic Fleets have taken up their station in the Thames, from Westminster to the Nore, and there they will remain until July 24, in order to give the people of the Metropolis an opportunity of seeing and visiting that bulwark of their security, of which they hear and read so much, and for the upkeep of which they are required to contribute. Never before has Father Thames been called upon to entertain so many ships of war, which will number no fewer than one hundred and fifty, stretching down a waterway of fifty miles. Towards Westminster the smaller craft, of course, such as submarines and torpedo-boats, are stationed, and the size of the vessels gradually increases as the river widens eastward into the estuary. Off Southend, for instance, are the giant *Dreadnought* and its three companion ships, the *Superb*, *Bellerophon*, and *Téméraire*, with numbers of other battle-ships equally majestic in appearance. Southend being easily accessible by a good service from Fenchurch Street or Liverpool Street, and also by through trains from St. Pancras, no doubt Londoners will go in their thousands to see the Empire's first line of defence. Numerous steamers also are to be engaged in carrying visitors for a cruise round the fleet. Among these are the *Duchess of Fife* (via Charing Cross and Port Victoria), the *Royal Sovereign* (per Messrs. Thomas Cook and Son), the *Shamrock* and the *Sunbeam* from Southend, and the *Golden Eagle* and *Eagle* from Fresh Wharf, London Bridge.

FOR VISITORS TO THE FLEET.

IN order that those of our readers who wish to visit the Fleet while it is in the Thames this week may know exactly what arrangements have been made by the Admiralty, we print here the regulations issued by the Commander-in-Chief. "Ships of the Home Fleet at Southend will be open to visitors at the following times:—Sunday, July 18, 2 p.m. to 6 p.m.; Monday, July 19, 9.30 a.m. to 11.30 a.m., and 2 p.m. to 6 p.m.; Wednesday, July 21, 2 p.m. to 6 p.m.; Thursday, July 22, 9.30 a.m. to 11.30 a.m., and 2 p.m. to 6 p.m.; Friday, July 23, 2 p.m. to 6 p.m. Ships will not be open to visitors on Tuesday, July 20. (1) H.M.S. *Dreadnought* will only be open to visitors on the afternoons of Sunday, July 18, Wednesday, July 21, and Thursday, July 22, from 2 p.m. till 6 p.m., and not at any other time. (2) Not more than one steamer at a time will be allowed alongside a man-of-war, and no attempt should be made by a steamer to go alongside when another vessel is lying there. (3) Steamers having discharged their visitors into a man-of-war are to remain alongside until all passengers have been re-embarked, unless permission to leave is obtained from the man-of-war. (4) Whenever the commanding officer of a man-of-war considers there are sufficient visitors on board his ship, he will cause a large red flag to be hoisted at the masthead, and whilst this flag is flying no steamer or other craft shall attempt to come alongside. (5) Should any vessel fail to comply with these regulations, their names will be made known to the fleet, and the commanding officers may refuse such vessels leave to discharge their passengers into the man-of-war, then or at any future time during the visit of the fleet." Regulations have also been issued for visitors to torpedo-craft moored above Tower Bridge. These state that submarines will not be open to the public. H.M.S. *Hazard*, torpedo-boats, and destroyers will be open daily (on week-days) from 9.30 to 11.30 a.m., and from 2.30 to 6 p.m. on Sunday and week-days. Clause 4, as above, relating to the red flag, applies to these regulations also.

THE PLAYHOUSES.

"THE BONNET CONSPIRATORS," AT THE COURT.

A RATHER odd idea lies at the basis of Miss Violet Simpson's romantic comedy to which she has given the appropriately odd title of "The Bonnet Conspirators." You might expect from that title some plot and perhaps scandal over which modern ladies of fashion or with views put their heads together, till you learn that the scene of action is laid in Napoleonic times. In point of fact, the whole drama of the story depends upon the position of certain lace on which scrolls are inscribed in cipher containing messages that pass between England and France as to a possible refuge for Bonaparte. The Emperor, we are to suppose, is still in hiding after Waterloo, and two young people of half-French origin, nephew and niece of a distinguished English lady, receive this lace as if it were smuggled goods, and so are head and front of a treasonable conspiracy. A young English diplomat of rank comes down to their aunt's manor-house, primed already with certain information, to solve the mystery of the lace, and quickly falls in love with the girl, but as quickly guesses her own and her brother's complicity. Gradually, thanks to the boy's perilous journeys after the lace, and the appearances of a smuggler and a follower of Napoleon, and the heroine's conflicts of conscience, we get some very exciting scenes, the only weakness of which is that the diplomat searching about after lace cuts rather a ludicrous figure. The play, indeed, without being wonderful, is pleasingly romantic, and its matinee production was remarkable as being the occasion of the debut of Miss Leah Bateman-Hunter, a member of the famous Bateman family, who has youth and good looks and temperament, and in the heroine's part showed a timorous, startled-nymph manner that was very suitable to the character. Mr. Harcourt Williams as the detective diplomat, Mr. Leon Quartermaine as a soldier disgusted at having to spy on his friends, Mr. Charles Maude as the heroine's light-hearted brother, and Miss Lizzie Webster in the rôle of a skittish spinster—all helped to make the afternoon pass very agreeably. [Other Playhouse Notes elsewhere in the Number.]

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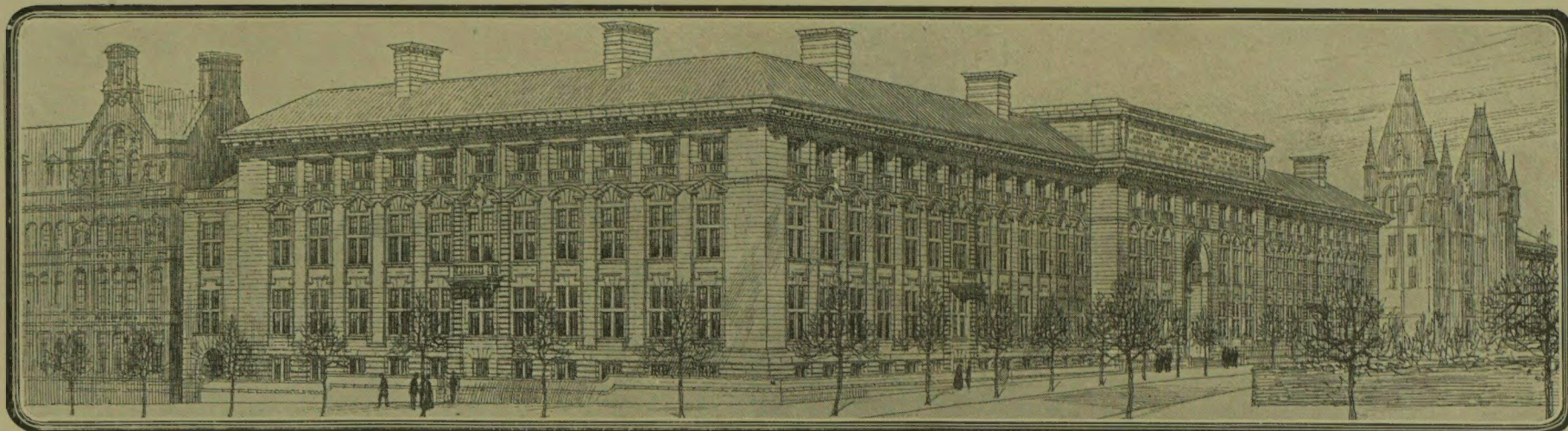
TITLEPAGE AND INDEX.

The Titlepage and Index to Engravings of Volume One Hundred and Thirty-four (from January 2 to June 26, 1909) of THE ILLUSTRATED LONDON NEWS can be had, Gratis, through any Newsagent, or direct from the Publishing Office, 172, Strand, London, W.C.

AT THE BOOKSELLERS.

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In a Good Cause. 3s. 6d. net.	The Log of H.M.S. "Hermione." John T. Brady. 5s. net.
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FROM THE WORLD'S SCRAP-BOOK.



OUR NEW CHARLOTTENBURG: SKETCH OF THE IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY TO BE ERECTED AT KENSINGTON.

When the Imperial College of Science and Technology, the foundation-stone of which was laid by the King last week, is completed, London's facilities for scientific education and research should rival the German Charlottenburg. The new college, which is to be built from the designs of Sir Aston Webb, will stand at the corner of Exhibition Road and Prince Consort's Road.

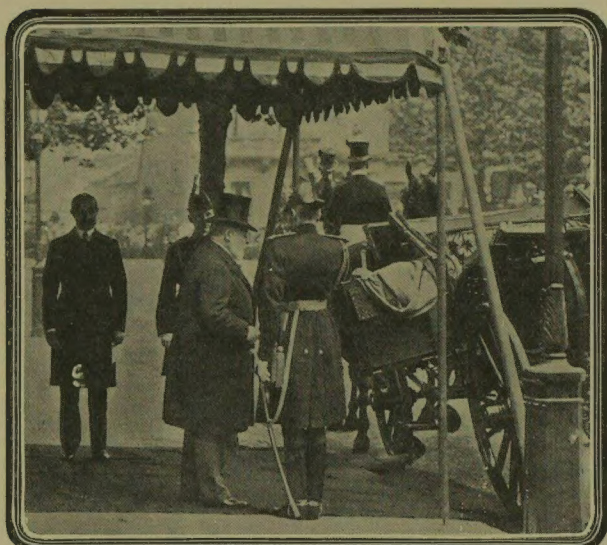


Photo. Rolak.

FOUNDER AND CHAIRMAN OF THE NEW COLLEGE: THE KING AND THE EARL OF CREWE.

When his Majesty laid the foundation-stone of the new Imperial College of Science and Technology, the Earl of Crewe (who is seen to the left in the above photograph), as Chairman of the Governing Body, delivered the Address.



Photo. Graphic.

THE DEPRECATOR OF NATIONAL SELF-DEPRECIATION: LORD CURZON OPENING THE NEW SCIENCE BUILDINGS AT ST. PAUL'S SCHOOL.

In opening the new science buildings at St. Paul's School last week, erected to commemorate the quatercentary of the school, Lord Curzon expressed the opinion that there was "too much of the spirit of decrying ourselves abroad in the land at the moment." He pointed out that, although our system of secondary education needs overhauling, it has features which are the envy and admiration of foreigners, and ought never to be relinquished.



Photo. Topical.

"THREE CHEERS FOR THE KING AND QUEEN!" THE HONOURABLE ARTILLERY COMPANY CHEERING THEIR MAJESTIES AT BUCKINGHAM PALACE.

On Thursday afternoon of last week his Majesty the King, accompanied by the Queen, inspected the Honourable Artillery Company in the Gardens of Buckingham Palace. The Corps was under the command of Colonel the Earl of Denbigh and Desmond, who, after the inspection, led his men in "Three Cheers for the King and Queen." His Majesty wore the uniform of the H.A.C. as its Captain-General and Colonel.

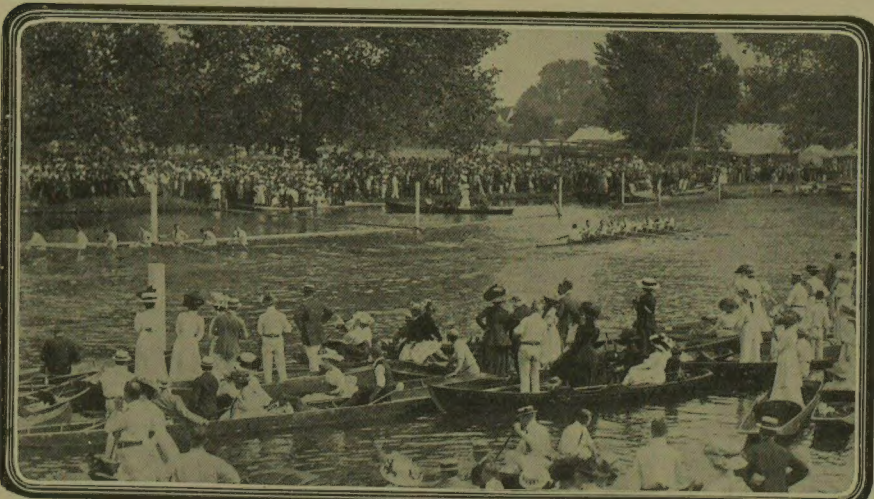


Photo. Topical.

WINNERS OF THE GRAND CHALLENGE CUP AT HENLEY: THE BELGIAN CREW AT THE FINISH.

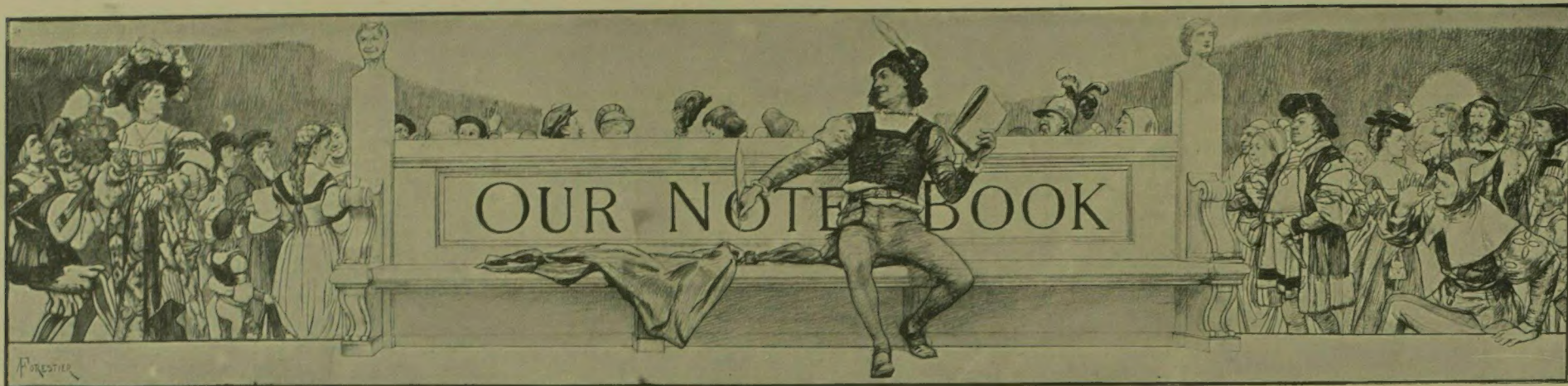
This year at Henley Regatta the Grand Challenge Cup was carried off by the Belgian crew, of the Royal Club Nautique de Gand. In the final they rowed against Jesus College, Cambridge, who went head of the river there this year, and beat them by a length, after a great race, in the time of 7 min. 8 sec.



Photo. Topical.

WINNERS OF THE GRAND CHALLENGE CUP: THE BELGIAN EIGHT ON THE COURSE.

Before meeting Jesus College, Cambridge, in the final of the Grand Challenge Cup at Henley, the Belgian winners rowed a heat against Magdalen College, Oxford. Magdalen, during much of the race, kept level, and at one time were even slightly ahead, but the Belgians spurred and won by half-a-length.



By G. K. CHESTERTON.

I SEE that Lord Curzon has been making a speech at my old school, and, since my absence from town did not allow me to hear it, I think I have at least the right to criticise it. There should be in these matters a division of labour, or, if you will, a division of pleasure. Some should have the rapture of hearing these speeches, and others the calmer joy of contradicting what they have not heard. As far as I can make out, Lord Curzon has joined the ranks of those who are at last repudiating Mr. Rudyard Kipling. So many people are repudiating Mr. Rudyard Kipling that I really feel that I ought to rush to his rescue. His last poem in the *Morning Post* was certainly a very bad poem; but we have all written bad poems. At least, I know that I would rather read Mr. Kipling's last poem even twice, nay, positively three times, than endure so much as one glimpse of the first five words of many poems that I wrote in my youth. The question, of course, is not merely literary. The point raised by the recent critics of Mr. Kipling, the point hinted at, I think, by Lord Curzon in his speech at St. Paul's School, was the alleged pessimism of Mr. Kipling; the suddenness and shrillness of his wail over the certain decline of England. Lord Curzon, as far as I know, did not mention Mr. Kipling's name, but I cannot doubt that he was in part denouncing Mr. Kipling's pessimism. He said that there was too much of the spirit of decrying ourselves abroad in the land at the moment. At the same time, one of the oldest and boldest champions of Kipling, the distinguished Fabian who signs himself "Hubert" in the *Manchester Sunday Chronicle*, has also turned upon his master and rent him. In fact, Mr. Rudyard Kipling, having been kicked by Radicals for cracking us up, is now to be kicked by his fellow-Imperialists for running us down.

Now I have no instinctive, no emotional objection to any Imperialist poet being kicked. But I think he ought to be kicked on correct philosophical principles, and for the right reason. It is not wrong either to crack your country up or to run it down, if you do either from a clean and patriotic motive. There is a place for both exercises. In poetry it is best to crack England up. In politics it is nine times out of ten best to run her down; for then she may begin to behave herself. But the real objection to much of Mr. Kipling's work has nothing to do with either one or the other. The weakness in his work is pride, which may be optimistic or pessimistic, but is always weak. Tamburlaine, in Marlowe, is optimistic and arrogant; Timon of Athens is pessimistic and arrogant. Schopenhauer was a conceited pessimist. Mrs. Eddy is a conceited optimist. The question is not whether a man feels well or ill: it is whether he feels superior. A man may quite reasonably regard himself as a jolly good fellow. He may at the same time quite consistently regard himself as a miserable sinner. The evil comes in when he thinks himself too good a fellow for fellowship. The evil comes in when he thinks himself so very miserable a sinner that his misery is more important than his sin. The good man is welcome whether at the moment he is sad or glad; but what is utterly intolerable is the Best Man—the man who is consciously better than others.

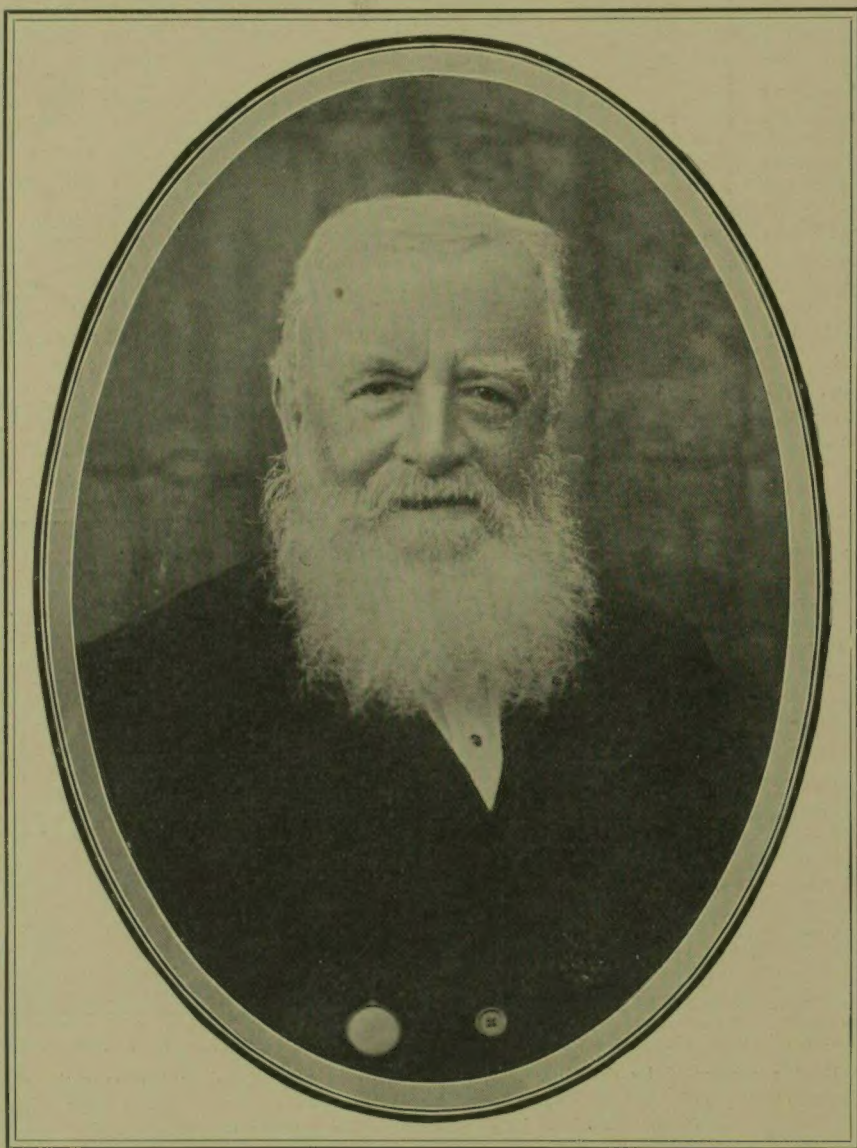
Perhaps that is why the young man at weddings is called "the Best Man," because he is secure, supercilious, and solitary like Satan. The bridegroom, on the other hand, is the Good Man, because he is divinely distracted, and full of holy fear. I do not vouch for the historical truth of this derivation. I have heard others. Some people will tell you that the best man is so called because he was the best warrior of the tribe in the times when women were married by capture. But you will pay no attention to that sort of bosh, I hope. Women never were

really the matter with Mr. Rudyard Kipling. He is not an Imperialist; he is an Anglo-Israelite. His error is not that he blesses Englishmen or curses them, but that he blesses and curses them as the Chosen Race, instead of blessing or cursing them as a Christian nation in the comity of Christian nations. The argument in my little Anglo-Israelite pamphlet was simple and pathetic. It was that Israel was promised an empire and that England had an empire; therefore, England was Israel. That anybody else had ever had an empire did not seem to cross the writer's mind. Nor does it ever seem to cross Mr. Kipling's. These two earnest Anglo-Israelites never seem to remember that we should never have inherited the notion of an Empire except from that Christian continent from which they cut themselves off. They never reflect that Imperialism can hardly be a purely Anglo-Saxon thing, since it is not even a purely Anglo-Saxon word.

The truth is, of course, that the notion of an Empire has come to the English at last in a highly battered condition, having been tossed about from one nation to another ever since the fall of Rome. Except the Swiss I can hardly think of any nation so dull or sensible as not to have had an Empire at some time. Even the nations that are only just big enough to be called nations (like Belgium and Holland) are quite big enough to have colonies and dependencies and Empire-builders and mine-owners and Levantine financiers, and all that makes a people great.

If I went in for the problem of the Lost Ten Tribes, I should say that the Ten Tribes were England, France, Germany, Austria, Italy, Spain, Portugal, Russia, Greece, and Sweden. That is what one might call being lost on a large scale. But however it was exactly that the tribes got mislaid, my purpose is served in pointing out that Anglo-Israelite insanity which is the root error of Kipling and Kiplingism. It is not that the Jingo poet praises England too much. One cannot praise England too much, any more than one can praise a buttercup too much. But if I praise one buttercup while burning all other buttercups as weeds, then that is idolatry. The Kiplingite praises his country, not with too much ardour, but with an implied denial of the existence of other countries in the same quality and degree. He is right to praise his country because it is his own; but he is wrong to praise it as if it were the only country that could be praised. Patriotism should be a passion—like first love, or a woman's pride in a baby; that is, it should be special and fastidious in the particular case, but quite vulgar and universal in the general character. Kiplingite Imperialism tries to make it the pas-

sion of a man who should fall in love with the moon. It seeks to make English patriotism a sublime monstrosity among other patriotisms, something that no one has ever felt before. That attempt to create new passions in which our brethren have no part is the beginning of all madness and of all decay. It is well to be alone sometimes, with love or with religion. But there is a degree of evil insolence which is not even content to be lonely if it thinks that other men can be lonely also. It would like to be isolated in isolation.



A VETERAN LIBERAL STATESMAN: THE LATE MARQUESS OF RIPON.

Lord Ripon, whose death at the ripe age of eighty-two has removed one of the most distinguished Liberal statesmen of his day, would seem to have been predestined to a political career, for he was born in Downing Street, while his father, as Viscount Goderich, was Prime Minister, in 1827. He first entered Parliament in 1852. After his removal to the Upper House in 1859 he held in succession the offices of Under-Secretary for War, Under-Secretary for India, Secretary for War (1863-6) and Secretary for India (1866). From 1868-73 he was Lord President of the Council, and during that time presided over the joint Commission which drew up the Treaty of Washington. From 1880-4 he was Viceroy of India, where his policy was distinctly pro-Indian. On his return he was appointed, in 1886, First Lord of the Admiralty, and from 1892-5 he was Secretary for the Colonies. On the advent of the present Government, he became Lord Privy Seal and Liberal Leader in the House of Lords, but on the death of Sir Henry Campbell-Bannerman, resigned this latter position to Lord Crewe, and retired from political life.

married by capture. They always pretended they were; as they do now.

The other day I came across a pamphlet of that peculiar sect which tries to prove that the Anglo-Saxons, whoever they are, are the Lost Ten Tribes, whoever they were. They must have got very thoroughly lost in Palestine to turn up in the German Ocean; it is rather as if a baby got lost in Battersea Park and was found at the police-station in Hong-Kong. But when I read this strange document I suddenly realised what is

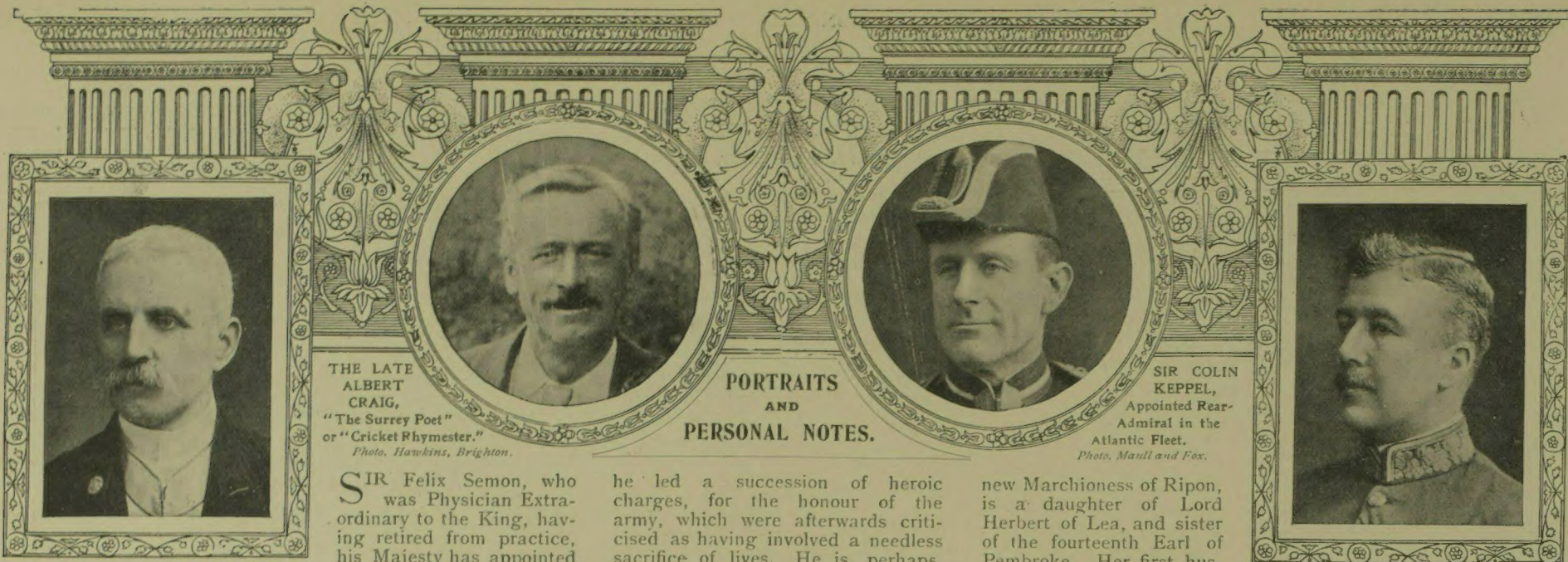
"TESS" AT THE OPERA: PRELUDE TO "THE TRAGIC MISCHIEF OF TESS'S LIFE."

DRAWN BY OUR SPECIAL ARTIST, CYRUS CUNEO.



THOMAS HARDY'S "TESS OF THE D'URBERVILLES" AS AN OPERA: SIGNOR SAMMARCO AS ALEC D'URBERVILLE, AND MME. EMMY DESTINN AS TESS.

The Illustration shows the moment at which Tess, finding herself locked out, turns confidently to Alec D'Urberville for assistance, and is persuaded that she is safe with him. "Tess," Baron d'Erlanger's opera, is, of course, founded on Thomas Hardy's famous novel, but its end is different. Tess marries Angel Clare, believing that he knows, and has forgiven, her past. On the eve of the wedding, she finds that he knows nothing, feels that all possibility of happiness is over, and leaves him. "Tess" was first produced in Naples, and one performance was given only, as on the night of the production an eruption of Vesuvius threw the city into a panic. Last autumn it was revived in Milan. Baron d'Erlanger, who is a Director of the Covent Garden Syndicate, is the composer of two other operas, and various songs.



THE LATE
ALBERT
CRAIG,
"The Surrey Poet"
or "Cricket Rhymester."
Photo. Hawkins, Brighton.

PORTRAITS AND PERSONAL NOTES.

SIR COLIN
KEPPEL,
Appointed Rear-
Admiral in the
Atlantic Fleet.
Photo. Maull and Fox.

THE RIGHT HON. THE EARL OF
LIVERPOOL, M.V.O.,
Appointed Comptroller of the Household.

SIR ALAN REEVE MANBY, M.V.O., M.D.,
Appointed Physician Extraordinary
to the King.

folk, was in 1885 appointed Surgeon-Apothecary to their Majesties (then Prince and Princess of Wales) and to the Prince of Wales (then Duke of York). He received his medical training at Guy's Hospital. He has invented several medical instruments, and contributed various papers to medical journals.

Sir Colin Keppel, K.C.V.O., C.B., D.S.O., who has just been appointed Rear-Admiral in the Atlantic Fleet, is the son of the late Admiral of the Fleet Sir Harry Keppel. Since 1905 he has been in command of his Majesty's yachts, and in particular of the *Victoria and Albert*. He served in Egypt in 1882 and 1884, and in 1898 commanded the gunboat flotilla on the Nile, receiving the D.S.O. and the thanks of Parliament. On reaching the rank of Captain in the following year he was put in command of the *Rainbow* and afterwards the *Grafton*. Sir Colin, who is only forty-six, will be the youngest flag-officer in the Navy.

Many playgoers will have learned with regret of the death of Mr. Charles Groves, whose performance of the part of Gregory Goldfinch in Mr. Sydney Grundy's play, "A Pair of Spectacles," as a foil to the Benjamin Goldfinch of Sir John Hare, contributed so largely to the success of that popular piece. The character impersonated by Mr. Groves



Photo. Lizzie Caswall Smith.
THE LATE MR. CHARLES GROVES,
The Gregory Goldfinch in "A Pair of
Spectacles."

will doubtless be recalled by his oft-repeated phrase, "A knaw that man, he cooms fra' Sheffield." Mr. Groves, whose parents were both on the stage, was born at Limerick in 1843. He toured with Hare all over Great Britain and America, and only last year reappeared in his old part in the revival of "A Pair of Spectacles," at the Garrick.

Albert Craig, "the Surrey Poet," for so many years a familiar figure at the Oval and other cricket grounds on the occasion of important matches, was an original genius in his way. As all cricket enthusiasts know, he used to walk round selling printed sheets with rhymes of his own on the match or players of the day. It was his ready wit, genial humour, and power of repartee, rather than any quality of his verses which made him so unique and popular. During his last illness he received a letter of sympathy from the Prince of Wales. Craig was a general favourite, and he will be greatly missed.

After all, the report that Mr. J. H. Whitley would be appointed Parliamentary Secretary to the Local Government Board proved to be incorrect, and the post has been entrusted to Mr. J. Herbert Lewis, M.P. Mr. Lewis represented the Flint Boroughs from 1892 to 1905. Since the latter date he has sat for Flintshire, and has been a Junior Lord of the Treasury. He is the

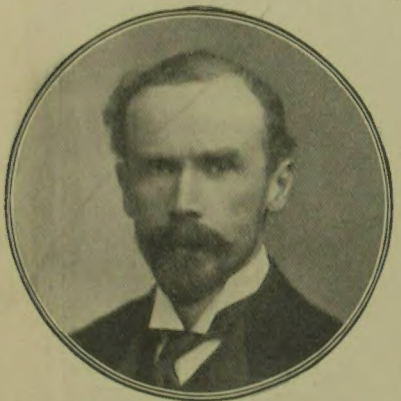


Photo. Elliott and Fry.
MR. J. HERBERT LEWIS, M.P.,
Appointed Parliamentary Secretary to the
Local Government Board.

only son of the late Mr. Enoch Lewis, shipowner, of Mostyn Quay, and was educated at Montreal University, and Exeter College, Oxford.

General the Marquis de Galliffet, Prince de Martigues, whose recent death has recalled numberless anecdotes of his adventurous career, and led to much discussion as to the French type of hero, had certainly an incentive to romantic adventure in his name, which might easily have come out of (or got into) the novels of Dumas. He has been compared to D'Artagnan, and his was certainly a heroism of a somewhat swashbuckling kind. He fought in the Crimean War, and, later, in Mexico, where he was severely wounded at the siege of Puebla. At Sedan

he led a succession of heroic charges, for the honour of the army, which were afterwards criticised as having involved a needless sacrifice of lives. He is, perhaps, chiefly remembered now for the pitiless severity with which, as commander of a brigade, he joined in suppressing the Communists after the war. He spent the evening of his days among his flowers and birds in his quiet home in the Rue Châteaubriand.

Earl de Grey, who, through the death of his father, now becomes



Photo. Nadar, Paris.

THE LATE GENERAL DE GALLIFFET,
The D'Artagnan of the French Army.

Marquess of Ripon, was born in 1852, and is the only surviving son of the late Marquess. His mother was a grand-daughter of the first Earl de Grey, and her husband, to whom she was married in 1851, was her first cousin. Lord Ripon has been for the last eight years Treasurer of the Queen's Household, and he is a well-known figure in the world of sport. He was formerly a Captain in the West Riding of Yorkshire Volunteers, and sat as M.P. for Ripon, in the Liberal interest, from 1874 to 1880. He is



Photo. Lillie Charles.

THE NEW MARCHIONESS OF RIPON,
Formerly Countess de Grey.

a J.P. for the North and West Ridings, and Deputy-Lieutenant of the North Riding. He received the K.C.V.O. in 1901. His wife, the

new Marchioness of Ripon, is a daughter of Lord Herbert of Lea, and sister of the fourteenth Earl of Pembroke. Her first husband was the fourth Earl of Lonsdale. Lord and Lady Ripon have no children, and there is no heir, either to the marquessate or the earldom of De Grey.

It was an ancestor of the Rev. William Perkins, the new President of the Wesleyan Conference, who was John Wesley's first convert in South Pembrokeshire, and at the master's call became a preacher. The intervening generations were either preachers or the wives of preachers, and thus the new President is linked with the founder of Methodism by a kind of apostolic succession. He entered the ministry in 1864, and has since worked in many places, including three years in Bayswater, six in the Black Country, twelve in West Lancashire, and nine in Bristol. In 1898 he became one of the Secretaries of the Wesleyan Mission, on whose behalf he has visited Italy, France, Spain, Portugal, and New York.

As anticipated, the post of Comptroller of the Household, recently vacated by the Master of Elibank, has been bestowed upon a peer, and the peer selected is the Earl of Liverpool. He was educated at Eton and Sandhurst, was formerly Major of the Rifle Brigade (Prince Consort's Own), and is now Major of its 6th Battalion. He served in the South African War, and received the Queen's Medal with three clasps. From 1906-8 he was State Steward and Chamberlain to the Earl of Aberdeen as Lord-Lieutenant of Ireland. Lord Liverpool married in 1897 Annette Louise, only daughter of the fifth Viscount Monck.

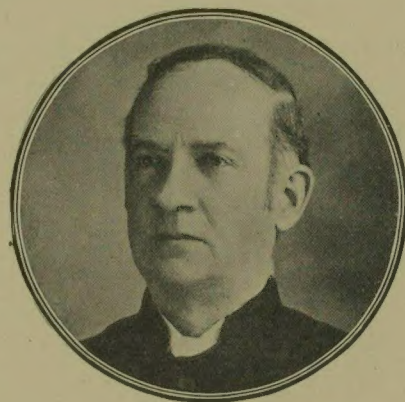


Photo. Scott, Bradford.

THE REV. WILLIAM PERKINS,
The new President of the Wesleyan
Conference.

Our Birmingham Supplement.

His Majesty the King had an exceptionally busy time last week, and covered a surprising amount of ground within a few days. After reviewing Territorials at Knowsley and Worsley, opening the Royal Infirmary at Manchester, and receiving an address at Liverpool, his Majesty arrived on the Wednesday in Birmingham, and there opened the new buildings of the University. These were erected from designs by Sir Aston Webb (the architect of the new Victoria and Albert Museum) and Mr. Ingress Bell. In the course of the ceremony his Majesty conferred the honour of knighthood on the Lord Mayor of Birmingham, now Sir G. H. Kenrick. In the absence of a Lady Mayoress, that position was occupied for the occasion by Mrs. Chamberlain, very appropriately, seeing that she is not only the wife of Birmingham's most honoured citizen, but that Mr. Chamberlain, by a former marriage, is the Lord Mayor's brother-in-law. Mr. Chamberlain himself, who is Chancellor of the University of Birmingham, was unable to be present. It is an interesting fact that he has twice married a Miss Kenrick, his first wife, who died in 1863, having been Miss Harriet Kenrick, a cousin of Sir George Kenrick, and his second wife, who died in 1875, Miss Florence Kenrick, Sir George's sister. The present Mrs. Chamberlain, who was married in 1888, is a daughter of the late Mr. W. C. Endicott, an American judge and statesman. As in the case of his Majesty's visit to Manchester, we have taken the opportunity to present a fully illustrated Supplement, giving a popular, and, we venture to hope, interesting, descriptive account of Birmingham's manifold industrial activities.



Photo. Elliott and Fry.

THE NEW MARQUESS OF RIPON,
As Earl de Grey, well known in the world
of Sport.

THEIR GRACES: THE LEADERS OF BRITISH SOCIETY.

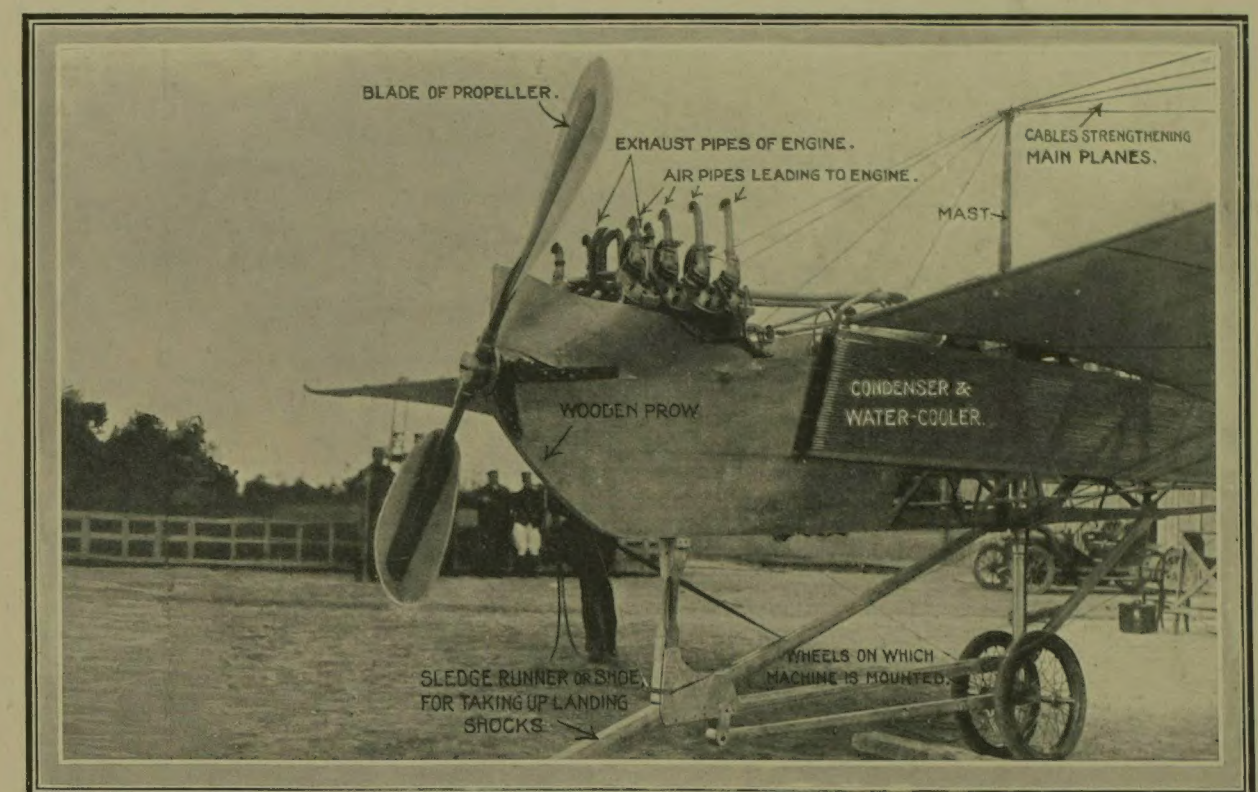
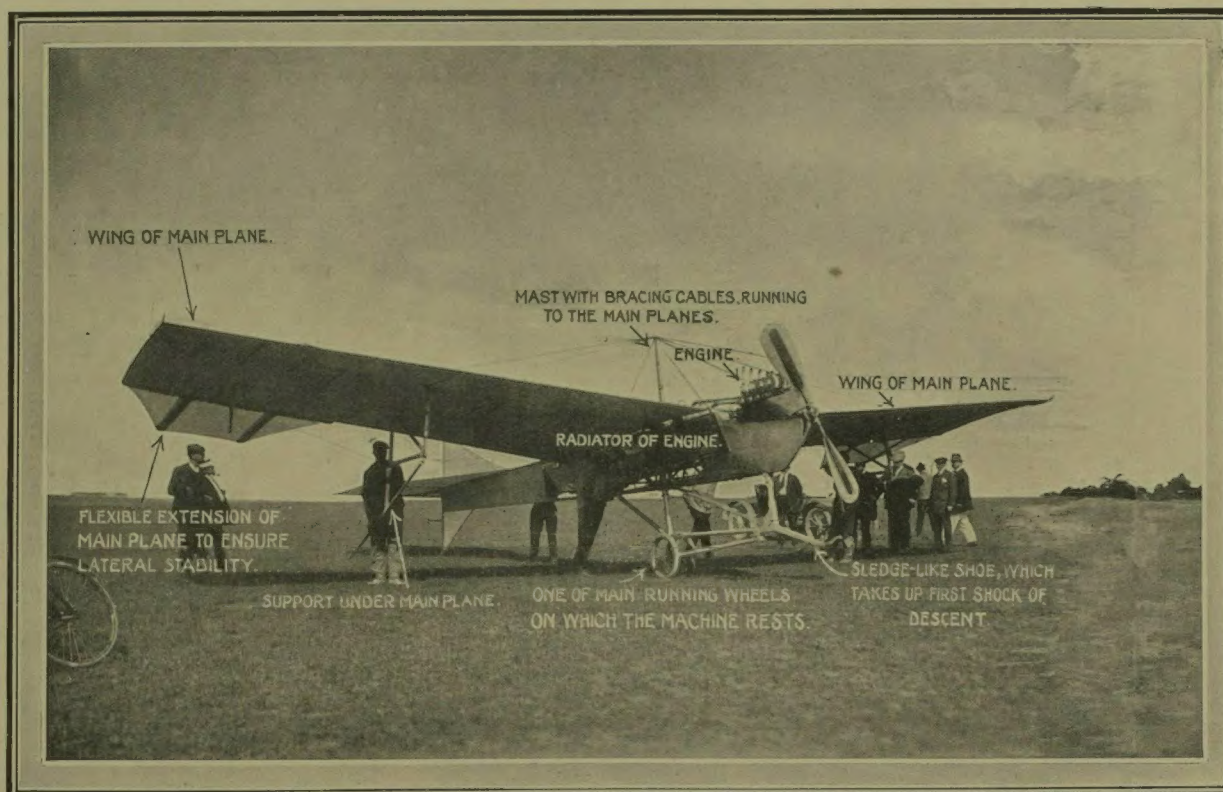
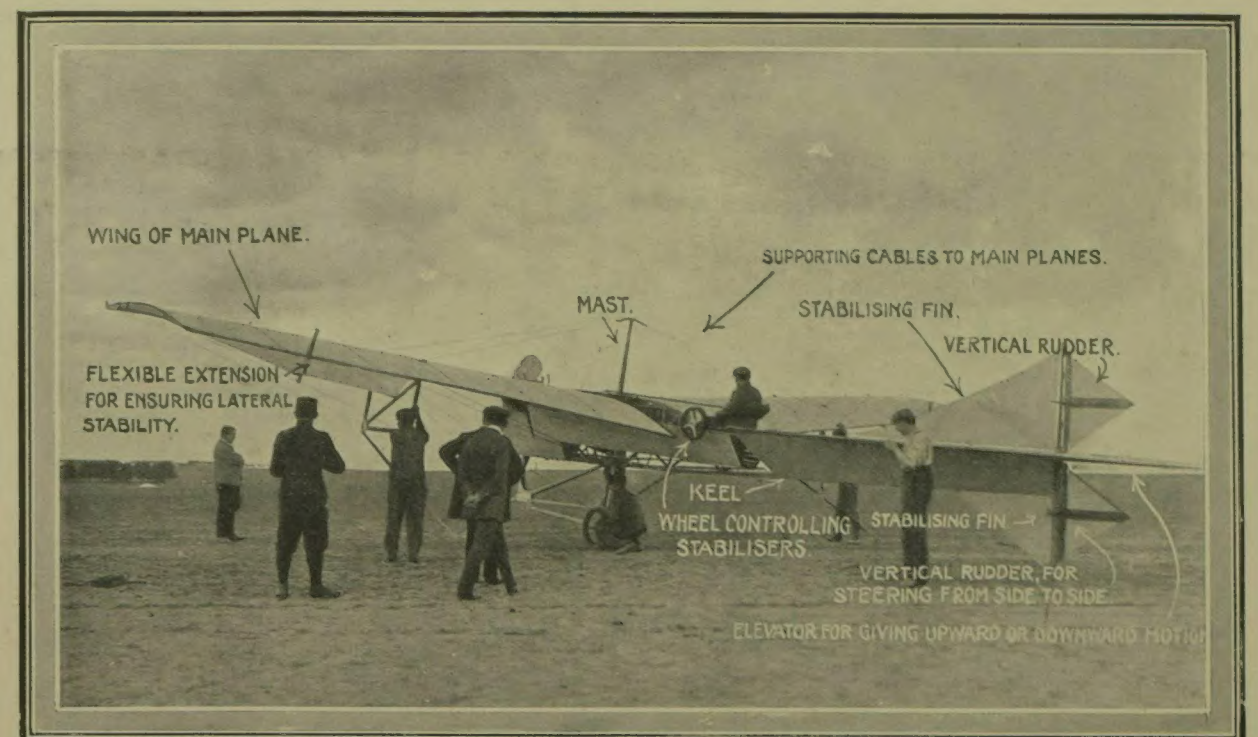
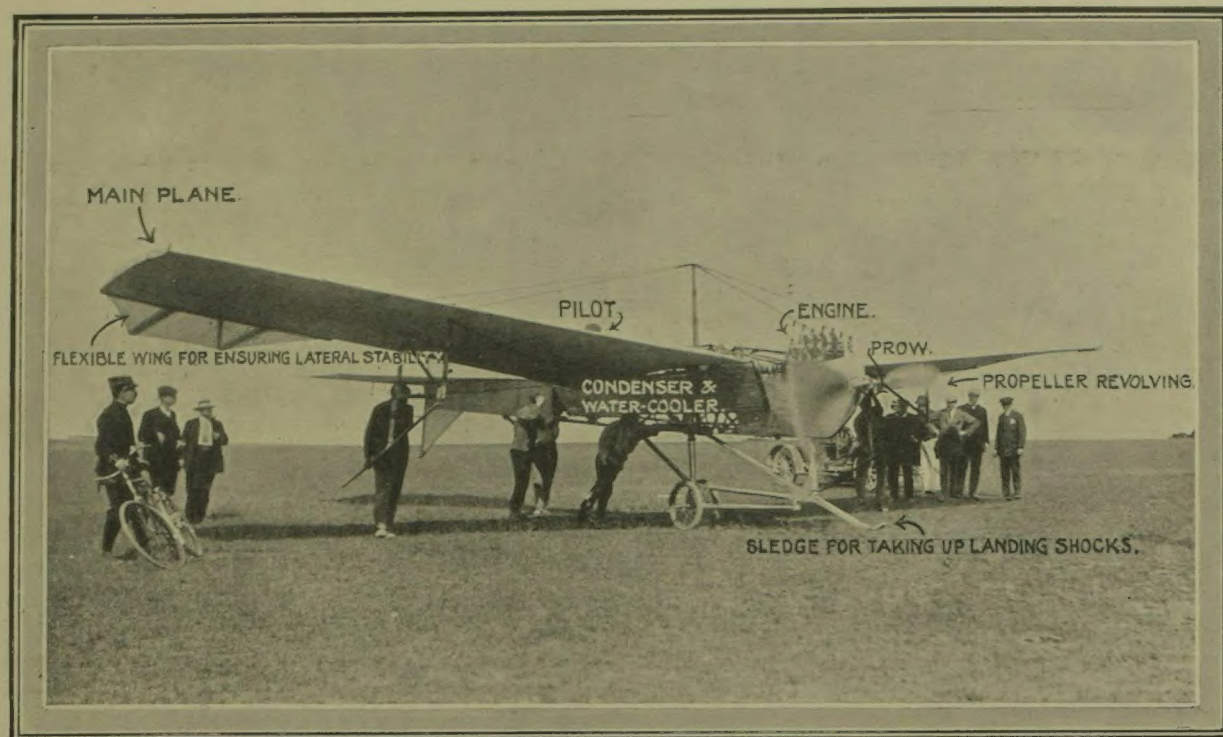
DRAWN BY OUR SPECIAL ARTIST. G. C. WILMSHURST.



NO. IX. — THE DUCHESS OF LEEDS.

The Duchess of Leeds, whose marriage took place in 1884, eleven years before the Duke succeeded to the title, was Lady Katherine Frances Lambton, daughter of the second Earl of Durham. Their Graces have five children, one son and four daughters. The eldest daughter was born in 1885, the only son, the Marquess of Carmarthen, in 1901.

FLYING ACROSS CHANNEL: MR. LATHAM'S MONOPLANE IN DETAIL.



We here give four photographs of Mr. Latham's monoplane, marked in such a way that even those who know nothing of the science of aviation may gain a good idea of the machine's construction. According to the aviator, the greater the speed the greater the safety. The one thing against high speed is the difficulty experienced in landing, even with such a sledge for taking up landing-shocks as that fitted to the monoplane under discussion. An excellent description of the machine appeared in the Engineering Supplement of the "Times" the other day, and we give here a few extracts: "The Antoinette monoplane, which is designed by M. Levavasseur, consists of a central skiff-like body, from each side of which a main plane springs at a slight upward tilt. The single propeller is mounted in front of the central body, and close behind is the motor. In a well to the rear of this the pilot is comfortably situated. . . . At the rear of the main body are vertical equalising fins, two vertical rudders, and a horizontal elevator for giving upward or downward direction. The lines of the body are very clean. . . . At the rear end of each main plane is a flexible extension, which can be given a varying angle of incidence for purposes of

stability. The under-frame is a clever piece of work. The chassis rests on two wheels placed close together, and a forward extension of this frame takes the form of a runner, which is designed to receive the first shock of landing and thus save the wheels from buckling strains. . . . The control of the Antoinette machine is by means of side wheels, those at one side governing the warping-planes, that at the other controlling the elevator. There is another controlling agent for the side rudders, and yet another for the fuel-supply to the engine. . . . The eight cylinders of the engine are grouped in two banks of four, arranged in V fashion; petrol is injected direct on to the inlet-valves, no carburetter being employed. The water-cooling arrangement on the Antoinette engine is also unique. Very little water is employed, and it is quickly turned into steam. This is carried away to an effective condenser, the tubes of which line the side of the main body. The condensed water is taken by a pump to the water-tank, and thence is pumped to the cylinder-jackets. This engine gives one-horse-power for about every three pounds' weight."—[PHOTOGRAPHS BY TOPICAL.]

CROSS CHANNEL BY MONOPLANE: MR. HUBERT LATHAM'S PREPARATIONS AT SANGATTE.

PHOTOGRAPHS BY ILLUSTRATIONS BUREAU, TOPICAL, AND L.N.A.



1. M. LEVAVASSEUR, INVENTOR OF THE ANTOINETTE MONOPLANE.

2. TESTING THE STRENGTH OF THE WIND: M. LEVAVASSEUR ON THE TOP OF THE DISUSED POWDER-MAGAZINE AT THE OLD CHANNEL TUNNEL WORKS AT SANGATTE.

3. MR. HUBERT LATHAM, PILOT OF THE MONOPLANE.

5. THE STARTING-POINT FOR THE FLIGHT: THE CLIFFS AT SANGATTE.

4. TRYING TO PICK UP A MESSAGE FROM DOVER: A MARCONI WIRELESS OPERATOR AT WORK AT SANGATTE.

6. BEFORE THE PUTTING TOGETHER OF THE MONOPLANE: ONE OF THE GREAT WINGS IN ITS PACKING-CASE.

Mr. Hubert Latham was the first aviator to give due notice to the "Mail" of an attempt to win the £1000 prize for a flight across the Channel. Mr. Latham is 26. His father is a Lancashire man, but he himself was born in France, is a French citizen, and has done his term of military service in France. He was in the car of the balloon that made the record trip across Channel in 1905, and

soon after that he drove an Antoinette motor-boat at Monte Carlo, and thus came to know M. Levasseur. He has hunted the elephant in the Soudan, and has travelled in British East Africa, in India, and in French Indo-China. Leaving out of account the Wrights, he held, at the time he issued his notice, a record for duration of flight—67 minutes. His monoplane can do from 35 to 40 miles an hour.



ART NOTES.

VERY interesting is the Tennyson Centenary Exhibition in the rooms of the Fine Art Society, although neither of the portraits, by Millais and by the painter of "The Last Muster," is in the least impressive. Rossetti's familiar scribble in pen-and-ink of the poet reading, with his book in one hand and an ankle in the other, is a more valuable record; and Mrs. Cameron's photographs possess a nobility and naturalness that can be found in few of the portraits of the nation's great Moderns. Mrs. Cameron's illustrations to the "Idylls of the King" might well have been included in this exhibition, for her camera nearly succeeded where illustrators have been accustomed to fail. The draughtsmen of the 'sixties made interesting and worthy pictures for his poetry; but otherwise Tennyson, however pictorial he may sound in the reading, has been singularly uninspiring to the artist. The exhibition includes manuscripts, letters, and presentation copies; but I scanned these in vain for a volume inscribed by the Laureate for Charles Dickens. The copy containing such an inscription was some years ago

COMPOSER OF "TESS," THE OPERA BASED ON THOMAS HARDY'S NOVEL: BARON D'ERLANGER.

It was arranged that Baron d'Erlanger's opera "Tess," which is founded on "Tess of the D'Urbervilles," should be given at Covent Garden on Wednesday last. It was first produced in Naples, and has been heard also at Milan. The composer is a Director of the Covent Garden Syndicate.

Photo, Langflier.



Photo, Ellis and Watery.

ADELINE GENÉE AT THE EMPIRE AGAIN: THE FAMOUS DANCER AS ELENA IN THE BALLET DIVERTISSEMENT FROM "ROBERT THE DEVIL."

put into a coat-pocket, the coat was hung upon a restaurant-peg, and never seen again.

Hand-clapping was loud at Christie's while Sir Cuthbert Quilter's pictures were realising their astonishing prices. The room seemed filled with conspirators determined to vindicate the position of painters who may well have been aggrieved at

of the sale, although it was rumoured that Sir Cuthbert had himself paid £4000 for it. Leighton no longer lives; his classicism is a corpse; and the colour, for which one may have had a courtesy fondness when one stood in the studio of the most charming of men, supported by his own personal intelligence and enthusiasm, now appears, in the colder atmosphere of Christie's, to have taken on the ghastly luxuriance of limelight. And would it not be almost as difficult to live for long on good terms with Mr. Holman Hunt's "Scapegoat" as with Leighton's "Cymon"? The "Scapegoat" has power and a peculiarly desolating ugliness very apposite to the subject, but it is for a gallery—the Tate was mentioned in its regard at the sale—and not for a home, even if the home be a palace of art in South Audley Street.

We have fondly hoped that Christie's was the sure and easy test of greatness: why then does Landseer's "Titania and Bottom," conforming to no pictorial standard acceptable at the present day, find a buyer at the sum of 2400 guineas?

Hardy's work. A modern of moderns, and consequently one who is quite prepared to revert to old forms in order to express emotions that are as old as humanity (which, after all, is so much older than our modern scale), Baron d'Erlanger is fortunate in the possession of a distinct gift of tunefulness; and where the mood of the opera justi-



OWNER OF A GUARNERIUS THAT WAS ONCE SPOHR'S: MISS ELSIE PLAYFAIR. Miss Playfair, who gave a successful recital the other day, owns and uses a Guarnerius with a history. The instrument once belonged to Spohr, from whom it was stolen. Years later it was recovered, and since that time it has passed into its present owner's possession.

previous welcomes accorded them in King Street. Thus a landscape by Mr. Leader reached a record figure, amid gleeful applause; while a tiny Poynter topped the sum paid for an exquisite Millet by about four hundred guineas, for it was a day of reprisals, and the Academy triumphed. Catalogued as "L'Amour Vainqueur": from the collection of J. Staats Forbes," the Millet canvas faced an audience not a little puzzled as to the picture's identity, for it was at once evident that this was not the "L'Amour Vainqueur" of lovely fame, the chief glory of Mr. Forbes' gallery. Bidders are alarmed by any cloudiness of pedigree, and Messrs. Cremetti thus secured the cheapest lot of the day. Sir H. von Herkomer's "Last Muster" was valued at 3100 guineas, and this on a day when Velasquez's portrait of Mariana, second wife of Philip IV., with cheeks as stiffened by rouge as her figure is stiffened by the brocaded boards of her costume, was knocked down for a miserly 2300 guineas. But the bidders again went forward cautiously, remembering, perhaps, that the Prado contains a rather finer version of the same subject, the Quilter example being probably a replica.

That Leighton's "Cymon and Iphigenia" realised the great sum of 2250 guineas was the chief surprise

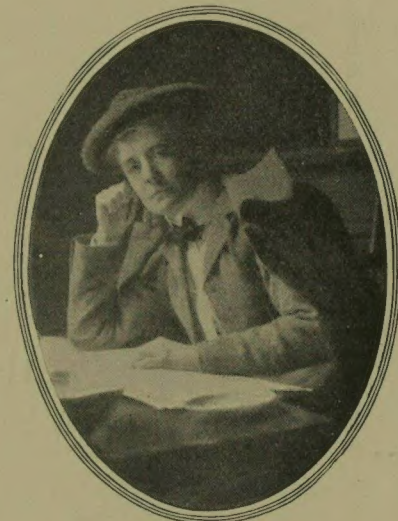


MRS. GEORGE CORNWALLIS-WEST (LADY RANDOLPH CHURCHILL) AS PLAYWRIGHT: THE AUTHOR OF "HIS BORROWED PLUMES," AND MEMBERS OF THE COMPANY.

Mrs. George Cornwallis-West's play was produced last week for four matinées. During the "run" the Hicks Theatre, at which it was presented, was given its new name, the Globe. In the photograph, reading from left to right are (in the back row, beginning with the third figure) Miss Winifred Fraser, Mr. Henry Ainley, Mrs. Patrick Campbell, Mr. Dawson Milward, and Miss Stella Campbell; (in the front row) Miss Annie Hughes, Mrs. George Cornwallis-West, and Miss Gertrude Kingston.

MUSIC.

QUITE late in the season one of the most important novelties promised in the prospectus has been produced at Covent Garden. Baron d'Erlanger's "Tess" is, of course, only a novelty as far as this country is concerned. It was produced some years ago in Italy, and quite favourably received in a very critical centre. It is the composer's third opera, the others being "Jéhan de Saintré," produced in 1894 in Aix-les-Bains and Hamburg; and "Iñez Mendo," produced in 1897 at Covent Garden under the pen-name of Ferdinand Regnal. In "Tess" the composer has not sought to deal with Mr. Thomas Hardy's supremely dramatic narrative in its entirety. The opera closes with the heroine's confession to her husband on the night of her marriage, and her flight from him when she learns that he cannot forgive her. Even within these seemingly narrow limits it is possible to bring upon the stage a sufficient number of moving incidents, and there can be no question about the absolute sincerity with which Baron d'Erlanger has approached Mr.



COMPOSER OF "THE WRECKERS," A COMMAND PERFORMANCE OF WHICH HAS BEEN GIVEN: MISS ETHEL SMYTH. A command performance of Miss Ethel Smyth's "The Wreckers" was given at His Majesty's last week. That the King and Queen might see and hear to the best advantage, Sir Herbert Tree had a special royal box built in the centre of the stalls.

fies it he does not hesitate to introduce broad and flowing melodies that are easily remembered, thus giving to his score a certain element of popularity that is not to be despised as long as music must please to live.

Musical London was greatly excited last week by a rumour to the effect that Mr. Joseph Beecham, of St. Helens fame, was about to make a considerable grant towards the endowment of the National Opera House. Unfortunately, Rumour proved no more reliable than she usually is, and it would seem that the supporters of the scheme must wait a little longer for an endowment. But it is interesting to note that the success of Miss Ethel Smyth's opera, "The Wreckers," has stimulated interest in English opera to a very considerable extent, and several plans are afoot to develop it in the near future. Only a wealthy city like London can bear the brunt of such an undertaking in the present state of our musical enthusiasm. Companies like those of Moody-Manners and Carl Rosa can do little more than lose in London the money they make in the provinces. In little more than a week opera in London will come to an end until next spring.

DANCERS WHO HOLD DEGREES: THE RUSSIANS AT THE COLISEUM.

PHOTOGRAPHS BY BERT, PARIS; DRAWING BY RENÉ LELONG.



1. Mlle. TAMARA KARSAVINA IN "LE PAVILLON D'ARMIDE."
4. M. KOSLOW THE YOUNGER IN "LE PAVILLON D'ARMIDE."
7. Mlle. MARIA BALDINA AND M. A. KOSLOW IN "LE FESTIN."

2. Mlle. KARSAVINA IN "L'OISEAU DE FEU."
5. THE MOST STRENUOUS MOMENT IN A REMARKABLE BALLET: Mlle. KARSAVINA IN "L'OISEAU DE FEU."
8. Mlle. BALDINA IN "LE FESTIN."

3. M. GEORGES ROSAY, AS CHIEF OF THE BOUFFONS IN "LE PAVILLON D'ARMIDE."
6. M. A. KOSLOW IN "LE PAVILLON D'ARMIDE."
9. Mlle. BALDINA AND M. A. KOSLOW IN "LE FESTIN."

Those members of the Russian Imperial Ballet who are in London are appearing at the London Coliseum with remarkable success. It has been said of them that they represent the most costly combination of dancers in the world. Each one of them has graduated at an imperial school of dancing. Mlle. Karsavina, for instance, graduated with a diploma of the first degree, which entitles the owner to an engagement at one or other of the imperial theatres. For the last four years she has been at the Imperial Theatre, St. Petersburg. M. Georges Rosay gained the highest possible award, and is principal character-dancer at St. Petersburg. M. A. Koslow has the diploma of the first degree as classic dancer and character dancer. Mlle. Baldina holds a diploma of the first degree.

AT THE SIGN OF ST. PAUL'S



REV. R. S. SWANN-MASON, M.A.,
Author of "Straight Talks to Stable
Lads," who has preached in the chapel
built by Mr. Richard Marsh at New
market.



"A FATHER OF PRINTING"
"CAXTON"
1422-1491



MR. ERNEST OLDMEADOW,
Whose new book, "Antonio," publi-hed
by Mr. Grant Richards, has made a
considerable stir.

From a Drawing by Henry Lamb.

ANDREW LANG ON CLOTHES.

AN ingenious American artist, Mr. Abbott, has been giving entertainments in which he clothes a life-size female doll with the varying costumes of the reigns of Louis XIV. to Louis XVI. As each modification of dress was caused, or so legendary anecdote says, by a freak or fault or foible of some fair lady, Mr. Abbott's lectures are very amusing to the sex, while his illustrations instruct the student of evolution in costume.



THE PRECURSORS OF TROUSERS:
A WELSH KNIGHT IN "TREWES"
IN KILPECK CHURCH.

"There are at Kilpeck Church, Herefordshire, some interesting carvings of Welsh knights whose costume includes trousers or trews . . . garments from which our modern trousers are derived."

rope, and there is a cloak, but there is no bodice.

The British men on whom Julius Caesar reports wore the trews (*braccae*), tight trousers, like Oriental archers on Greek vases of the sixth century B.C. The Gaels, at least, used spotted striped stuff, *brecan*, rather like Highland tartans. The body was covered with the smock, the Greek *chiton*, and for cold weather, as in Greece, there was a large cloak. In sixteenth-century drawings the Irish and our Highlanders wear the smock, and over that the brooched and belted plaid, caught up into the belt and covering the upper thighs with baggy folds. The separate skirt, or philabeg, is a later invention: it was certainly worn by Lord George Murray in 1745.

Why Mr. Clinch talks of the Greeks and Romans as "deriving their origin from the bare-legged Egyptians" I know not. They came from the North, it is usually said, with their smocks and cloaks. Mr. Clinch supposes the Anglo-Saxons to have dressed, when they came here, like the Franks, described by an unnamed "writer of the fifth century," in a short-sleeved chiton and greenish *sagum* or mantle.

All these Northern peoples used brooches, fibulae, or safety-pins, like the Greeks to keep

their garments in
of formidable pro-
Saxon manuscripts

place; they are often
portions. In Anglo-
of the tenth century,

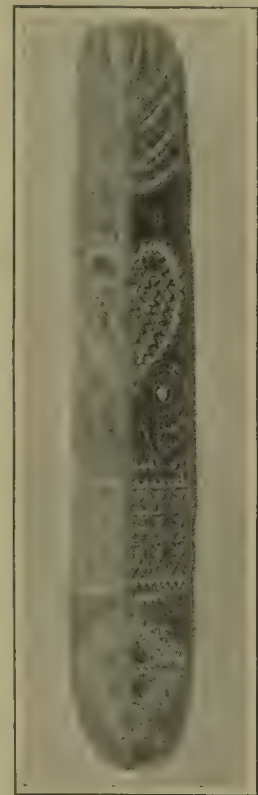


QUEEN ELIZABETH AS A PRINCESS: A PAINTING OF 1554.
This picture of Elizabeth as a Princess about the age of twenty-one, and four years before her accession, is taken from a painted panel discovered at Little Gaddesden, Herts.

we see drawings of costume very like the archaic Greek in drapery. With the Normans, too, it was a case of tunic and mantle, and, in war, of chain-mail. Women began to

have "waists" as early as the thirteenth century, and, in the sixteenth, Queen Mary Tudor has her body boxed tight in a kind of cylinder, much like what Queen Clementina wears in 1725. With this tightness above always comes one or other kind of prodigious hoop, or farthingale, or crinoline below. Cretan ladies dressed thus as early as 1700 B.C., and had the same ruffs and high puffed shoulder-sleeves as ladies of 1580 A.D. There is a limit to human powers of invention: under Elizabeth, as under the Court of Versailles, everything was puffed up, and spread out, and covered with costly ornament, embroidery, lace, huge pieces of jewellery. Display was the motive, a buckram stiffness was the rule, and our remote Anglo-Saxon ancestors dressed in infinitely better taste, in Hellenic taste, if we may judge from their art. For women, wigs of various colours were in; by 1568 Mary Stuart had as many wigs as her sister and her foe Elizabeth.

The ladies of the Cavaliers, under Charles I., dressed with a pleasant simplicity, charming after the endless exaggerations of the late Tudor and Jacobean periods. The men with their boots, wide hats, and lovelocks were picturesque gallants, but we see little of this age in Mr. Clinch's book. Under



MORE ORNATE THAN THE
MODERN WHALEBONE: AN
18TH CENTURY STAY-BUSK.
This highly decorated stay-busk bears the inscription "E.E. 1776." The second half of the eighteenth century was a period when extravagances of dress were very fashionable.

Charles II. the perruque was a costly imitation of the natural lovelocks of Claverhouse, and the great perruque remained in power till the short white wig, rather like a barrister's, of 1725 usurped its place. Ladies returned to the stiff busk and puffed-up hair and huge hoops of the Elizabethan time. At the end of the century the tall hat for men, a hat not so tall as the Regent Morton wears about 1570, began its tyranny, which is not yet overpast. This hat is the ugliest, most shadeless, hardest, and least comfortable that ever was devised.

The trouser, concealing the legs in a pair of cloth cylinders, appears to have peeped into existence as early as 1762, but has run its course mainly through the nineteenth into the twentieth century. "It came to stay," despite all protests. The mid-Victorian woman went back to the hoop, which was tenacious of power in proportion to its ugliness and absurdity.

Mr. Clinch illustrates armour as well as dress, and it is curious to see how all armour is evolved from that of Greece in the sixth century B.C., being merely made stronger and heavier as projectiles increased in power, till, when they became irresistible, armour was abandoned.



A SEVENTEENTH-CENTURY GARMENT IN THE VICTORIA AND ALBERT MUSEUM: A SATIN BODICE.

"The Isham collection, now in the Victoria and Albert Museum, contains a very good example of an early seventeenth-century lady's bodice (here reproduced). The sleeves are full, and reach only to the elbows, where they are drawn in by a cord. The front is open, revealing a species of short stays laced by a cord. The material is cream-coloured satin. It is slashed with wavy cuts throughout at frequent intervals, and its edges are scalloped."

Illustrations reproduced from "English Costume," by George Clinch, F.S.A. Scot., F.G.S. By courtesy of the Publishers, Messrs. Methuen.

THE GREAT NAVAL DISPLAY IN THE THAMES: THE BRITISH NAVY



THE FIRST OF OUR SEVEN "DREADNOUGHTS": THE ELIZABETHAN WAR-VESSEL OF THE NAME.

By an interesting coincidence the Thames naval display takes place during the three-hundred-and-twenty-first anniversary week of the battles in the English Channel with the Spanish Armada, in which our first "Dreadnought" greatly distinguished herself, and won the honour of knighthood for her Captain (John Beeston). Our present "Dreadnought," the seventh in succession, and flag-ship of the Home Fleet, is at the head of the great British Armada in the Thames to-day. Our first "Dreadnought," built by Queen Elizabeth in 1574, was a two-decker of 450 tons, carrying 27 guns: 24-pounders, or "cannons-petro" as they were called; culverins, or 18-pounders; demi-culverins, or 9-pounders; sakers, or 5-pounders. She was manned by 200 men, divided into mariners, gunners, and soldiers. At nearly all our great battles a "Dreadnought" has taken her part—against the Dutch under Monk and Rupert; at La Hogue; with Boscawen; and at Trafalgar.

DRAWN BY CECIL KING.

THE "DREADNOUGHTS" OF NELSON'S DAY, OF TO-DAY AND OF THE AIR.



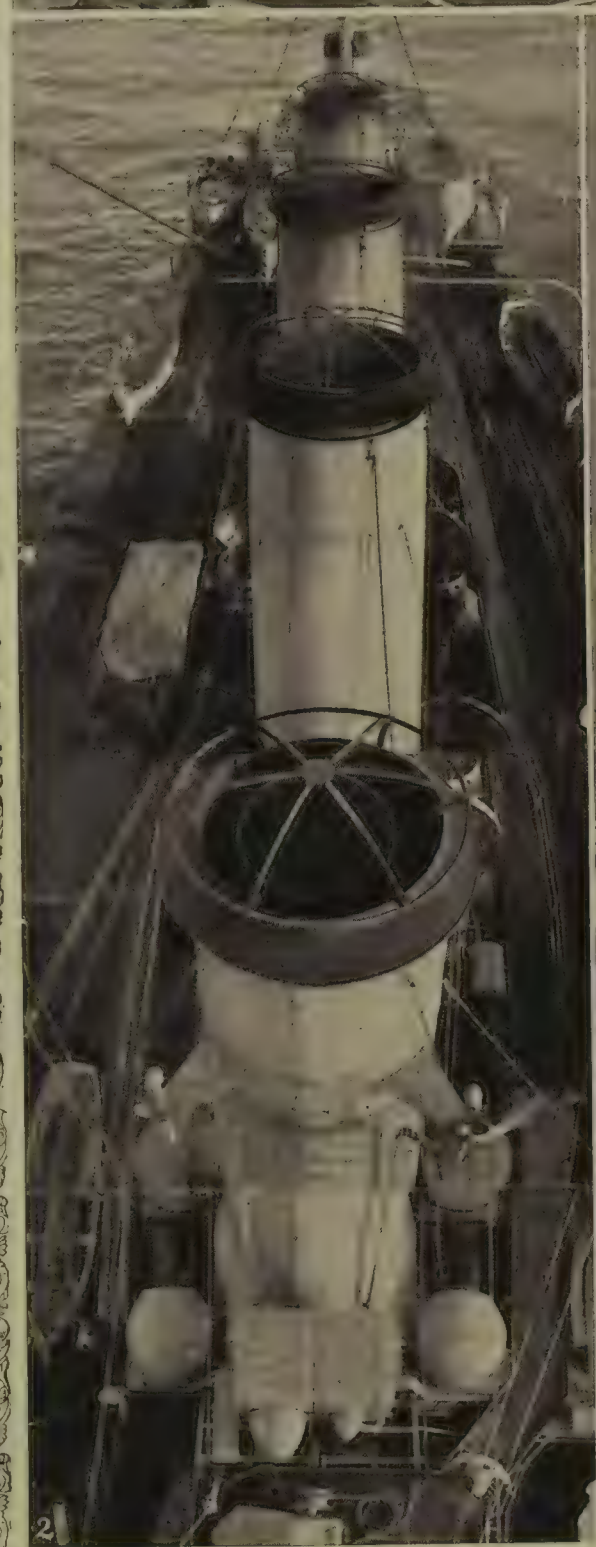
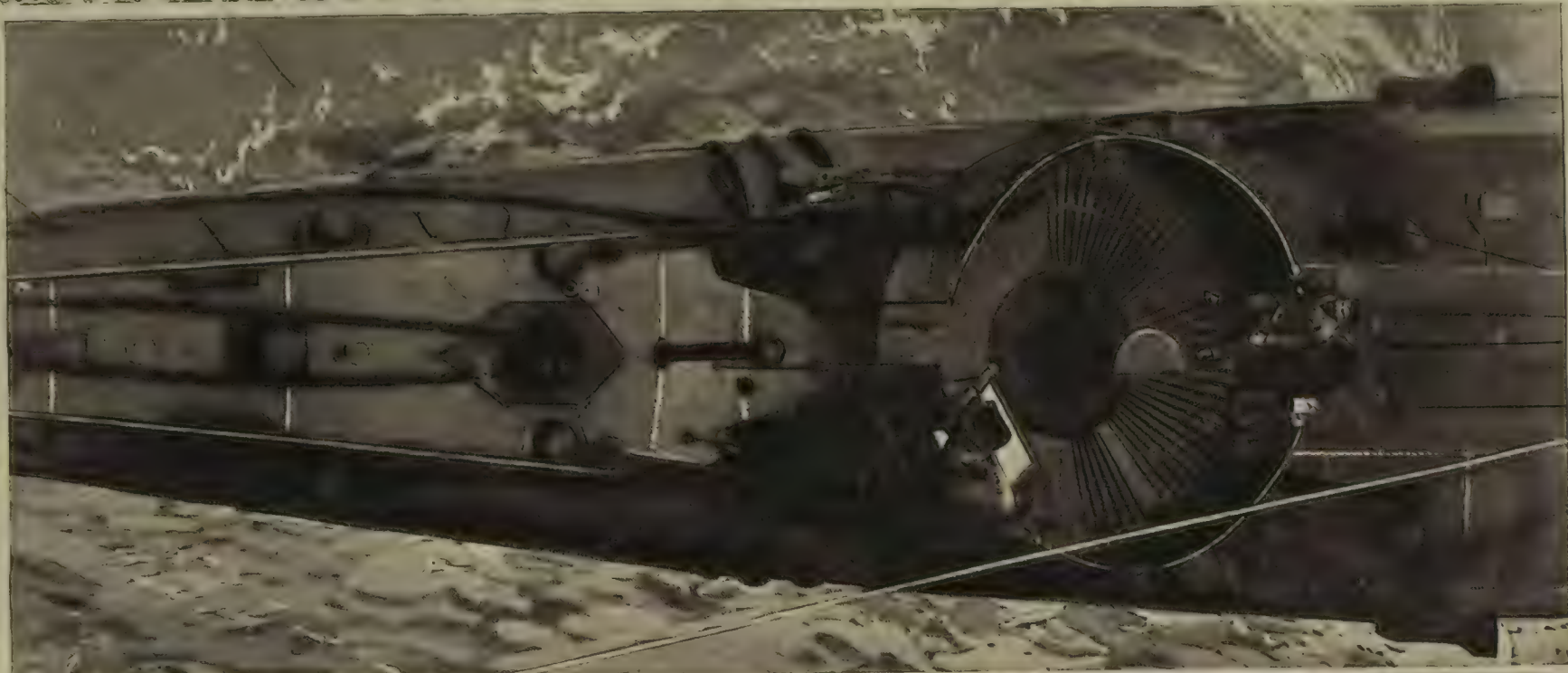
1. THE "DREADNOUGHTS" OF NELSON'S DAY AND OF TO-DAY: THE "VICTORY" COMPARED WITH THE GREAT WAR-SHIP.

The extremes of a century meet in this picture. A hundred years ago this week, the "Victory"—with her Trafalgar honours fresh upon her—was flag-ship of the British fleet on war service in the Baltic, and represented the favourite type of British first-rate—fast, handy, and hard hitting; what the "Dreadnought," the flag-ship of our present day Home Fleet, is. They provide an extraordinary contrast in detail. The "Dreadnought" is of 17,900 tons displacement, the "Victory" of 3500; the "Dreadnought" is built of steel, the "Victory" of oak; 800 officers and men form the "Dreadnought's" complement, 850 formed that of the "Victory;" the "Dreadnought" was built in two years, the "Victory" in five years and two months; the "Dreadnought" cost £1,797,497; the "Victory" £89,000. The "Dreadnought's" heaviest weapon is a 12-in. 58-ton gun, firing an 850 lb. shell, with 325 lb. of cordite, and ranging (extreme distance) up to 25 miles; the "Victory's" heaviest weapon was a 6-in. 56-cwt. gun, firing a 32 lb. solid shot, with 10 lb. of gunpowder, ranging (extreme distance) 3 miles. Each "Dreadnought" gun takes over a year to make, and costs £11,000; four "Victory" guns were turned out a week at £57 15s. each.

2. THE "DREADNOUGHTS" OF THE AIR AND OF THE SEAS: THE ZEPPELIN DIRIGIBLE COMPARED WITH THE GREAT WAR-SHIP.

The following are the leading features, or "points," of the "Dreadnought" and Zeppelin air-ship—each representing the standard type of craft to date for aerial and marine warfare. The Zeppelin air-ship of the latest size and construction (such as "Zeppelin III.") is 460 feet long, has two motors and two propellers actuated by benzine. The air-ship has an extreme radius of action, without replenishing her fuel store, of from 600 to 750 miles, according to Count Zeppelin himself. The air-ship has an aluminium frame, and can go from 12 to 15 miles an hour against the wind. Its normal long-distance complement is six men, but it can carry for a distance of from 200 to 300 miles twenty men (possibly thirty) and remain four days in the air. It cost £50,000, and can carry twenty-five "torpedoes" for dropping, weighing each from 110 to 160 lb. The "Dreadnought" is built of steel, is 490 feet long, has eighteen boilers and turbine engines with eight propellers. She uses both coal and oil fuel. Her longest single non-stop run has been 4000 miles across the Atlantic, at 17 knots an hour throughout. She carries upwards of 800 men, and cost £1,760,000 to build, gun, and equip.

AS THE CREWS OF AIR-SHIPS WOULD SEE THEM: WAR-SHIPS FROM ABOVE.



1. AS VIEWED BY A MAN IN MID-AIR: A TORPEDO-BOAT DESTROYER SEEN FROM ABOVE.

2. SEEN FROM ABOVE: THE UPPER DECK OF A CRUISER—LOOKING AFT.

3. LOOKING DOWN ON A TORPEDO-BOAT DESTROYER.

4. SEEN FROM ABOVE: THE UPPER DECK OF A CRUISER, LOOKING AFT.

5. A CRUISER VIEWED FROM THE SKIES; LOOKING FORWARD.

In the past many have been the battles between engines of war on the sea and engines of war on the land—ships fighting forts and batteries ashore; with the generally accepted result that efficiently armed land defences are considered impregnable against sea attack. Now we have to look forward to engines of war in the air fighting their equivalent on the sea—air-ships engaging battle-ships. How the fighting will shape itself one can only guess as yet, but a useful idea of how the scene of action will present itself to one side at least is got from the illustrations, which show how the vessels would appear to an air-ship approaching in order to drop explosives, the only method of attack. It is, however, not easy to drop things straight, even with practice. That anyone can prove for himself. Leave your hat at the bottom of a tree, climb up a dozen feet and try how many stones out of a dozen or so you can manage to drop right into the hat. Not many, you will find.—[PHOTOGRAPH OF NO. 3 BY ILLUSTRATIONS BUREAU.]

THE THAMES IN THE HISTORY OF THE NAVY.

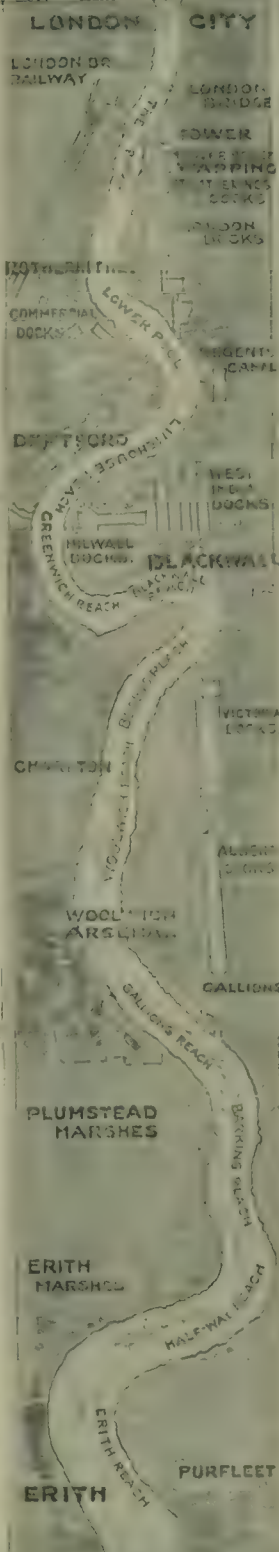
BLAKE'S FLEET OFF SOUTHEND &
LEIGH, AFTER BATTLE WITH
VAN TROMP, DECEMBER 1652.



THE TOWER -



IN the Middle Ages, London was a very important naval station, and centre for the "King's ships," six or seven of which were at all times kept moored off Tower wharf, with their war-fittings and gear kept stored in the Tower, close at hand, just as we use the term "H.M.S." for a King's ship, all through the Middle Ages the term "of the Tower" was added after war-ships' names.



-WAPPING-



WAPPING was regularly the great London recruiting field and centre for the pick-up of the sailors for the Navy, from Drake to Nelson's time. On every outbreak of war press-gangs invaded the district daily and swept the streets, and searched the lodging-houses at night, sending off their captures to a "tender," or receiving-ship, moored in the river, whence they were sent to the fleet in batches every week.

ROTHERRHITHE-



IT was at Rotherhithe that the famous "Fighting Temeraire" was broken up in 1838. Turner saw her as she was passing near Greenwich, and sketched her for his masterpiece, while on her way there. Numbers of people went from all parts of London to see the famous old ship broken up, attracted by reports of "finds" of Trafalgar shot stuck in her timbers.

- DEPTFORD -



THE most notable of the hundreds of man-of-war launches at Deptford Royal Dockyard was that of the "Loyal London," a first-rate, built by subscription by the City in 1666. Charles II., and his Court and the Lord Mayor and Sheriffs and Aldermen, were present, together with James Duke of York, John Evelyn and Pepys, and Dryden, the Poet Laureate, who commemorated the event in verse.

-TILBURY-



RATCLIFF was Sir Walter Raleigh's home while interviewing officers and preparing for the great naval attack on Cadiz, which was Queen Elizabeth's counterstroke for the Spanish Armada. It was there that he went on board his flag-ship, the first of our "Warspites," which is seen passing Tilbury Fort, in tow of her boats, on her way to the rendezvous of the fleet at Plymouth.

GREENWICH.



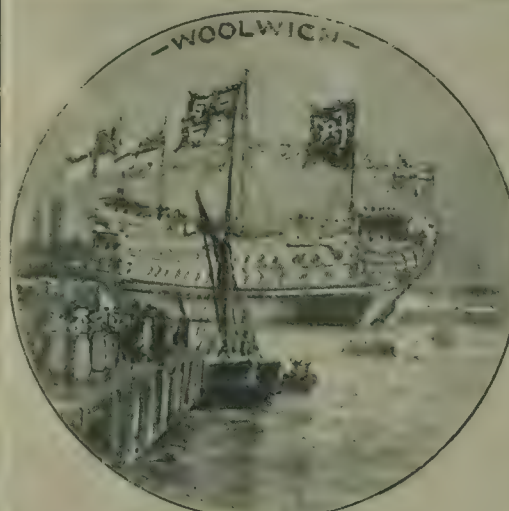
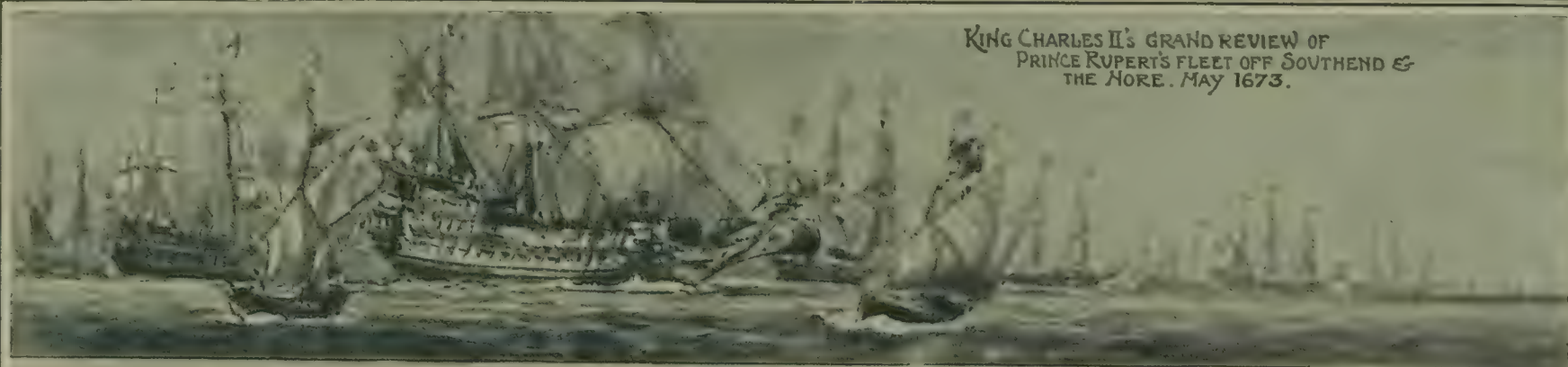
KING GEORGE III'S REVIEW OF ADMIRAL PARKER'S
FLEET OFF SOUTHEND. AUGUST, 1781.



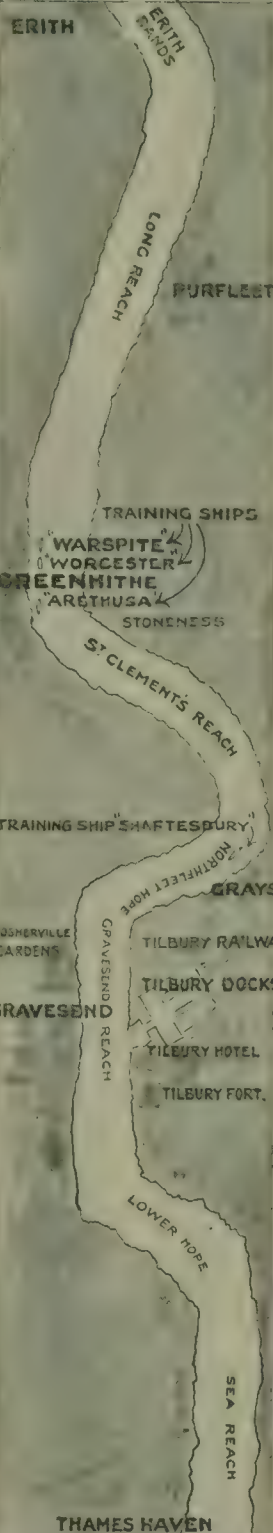
Many and varied are the associations between the Thames—the "River of London," as it often used to be called—and the Royal Navy. Some of the more notable of them, taken at random, are shown here. Several hundreds of the old men-of-war that fought under Drake, Blake, Benbow, Rodney, and Nelson came from the Thames shipyards and dockyards, and thousands of Thames watermen, and men recruited in the streets of London, took part in fighting the guns on board them, and winning our victories during the two hundred years between the Spanish Armada and Trafalgar. In elaboration of the descriptions written upon them, we may say of the illustrations that figure at the tops and bottoms of these pages that the first of

[Continued on Facing Page.

THE "RIVER OF LONDON" AND THE SENIOR SERVICE.

KING CHARLES II'S GRAND REVIEW OF
PRINCE RUPERT'S FLEET OFF SOUTHEND &
THE NORE, MAY 1673.

THIRTY thousand people, and all the Admiralty Lords, attended Woolwich Dockyard for the "float-out" of the famous three-decker, the "Royal George," in 1756. She was the biggest war-ship of the day, and was talked of as a wonder of the world. This was the ship that sank at Spithead in 1782 and drowned Kempenfelt and eight hundred people, including women and children.



ONE of the sights of the river at the time of Trafalgar was the frigate "Retribution." She was originally the "Hermione," the crew of which mutinied, murdered all the officers, and gave the ship up to the Spaniards. She was recaptured and renamed "Retribution." But the sailors said she was haunted, and the Admiralty took her off the active list, and moored her as a hulk off Woolwich Arsenal.



THE famous "Great Harry," after thirty-five years' service, was burned to the water's edge one night in 1553 off Erith. The ship had just been renamed the "Edward," in honour of the reigning Sovereign, Edward the Sixth. This Edward was actually the next predecessor of the name to our modern battle-ship the "King Edward VII."

STONE cannon-balls of "Kentish rag" were largely used by the Navy during Henry VIII. and Elizabeth's reigns. The State quarries were situated near the river at Greenhithe. We here see Grenville's famous "Revenge" taking in her supply of stone shot, with some of which she fought the fifty-three Spanish ships in her tremendous battle off Flores in the Azores.



WHEN Napoleon's great army at Boulogne threatened to invade England in 1805, in order to bar the Thames a number of Indiamen and old men-of-war, with heavy cannon mounted on one broadside, were moored right across the Thames in the Lower Hope below Gravesend. They were manned by London watermen volunteers, raised by Trinity-House.

IN March 1665, at the outset of war with the Dutch, the "London," a fine first-rate of the day, originally built by Cromwell, was passing Thames Haven on her way to Gravesend to take an admiral on board, when she suddenly blew up, upwards of three hundred men losing their lives. The sensation caused by the disaster caused the City to volunteer to replace the ship at its own cost.

DUNCAN'S CAMPERDOWN FLEET AWAITING
KING GEORGE III FOR THE EXPECTED REVIEW OF OCTOBER, 1797.

Continued from Facing Page.]

them shows Blake's fleet sheltering off Southend and Leigh in December 1652 after the defeat of Blake by Tromp off Dungeness; the second Charles the Second's review off Southend of the fleet setting out under Prince Rupert in May 1673, to fight the Dutch; the third, George the Third's review of Admiral Parker's North Sea fleet in August 1781, on its return to the Thames after fighting a drawn battle off the Dogger Bank; and the fourth, Duncan's victorious fleet, after the battle of Camperdown, waiting off Southend and the Nore for George III, to come down from London and review it. The royal yacht started; but the weather proved so stormy that the King did not proceed, and the intended review fell through.

THE SUBMARINE'S ONE WEAPON: THE TRACK OF THE TORPEDO.



A SUBMARINE ATTACKING A BATTLE-SHIP: A TORPEDO ON ITS ERRAND OF DESTRUCTION, ITS PATH MARKED BY A LINE OF FOAM AND AIR-BUBBLES.

Here, at a glance, are shown the essentials of how a submarine would attack an enemy's ship in war. The track of the torpedo under water on its errand of destruction is indicated plainly by the continuous line of foam and of air-bubbles, given off from the compressed-air chamber of the torpedo in the act of driving the propelling machinery. Our newest torpedoes range from 4000 to 5000 yards, and spin through the water at from thirty to forty knots during the initial stage of their "run," the pace diminishing gradually as the pressure in the air-chamber gets less from exhaustion. The submarine here shown fired her torpedo while entirely submerged, except for the periscope, and then rose to the surface for the Lieutenant in charge to note from the conning-tower if he hit or not. How quickly a submarine can rise in such circumstances is shown by the fact that the boat was on the surface before the torpedo had reached the ship.

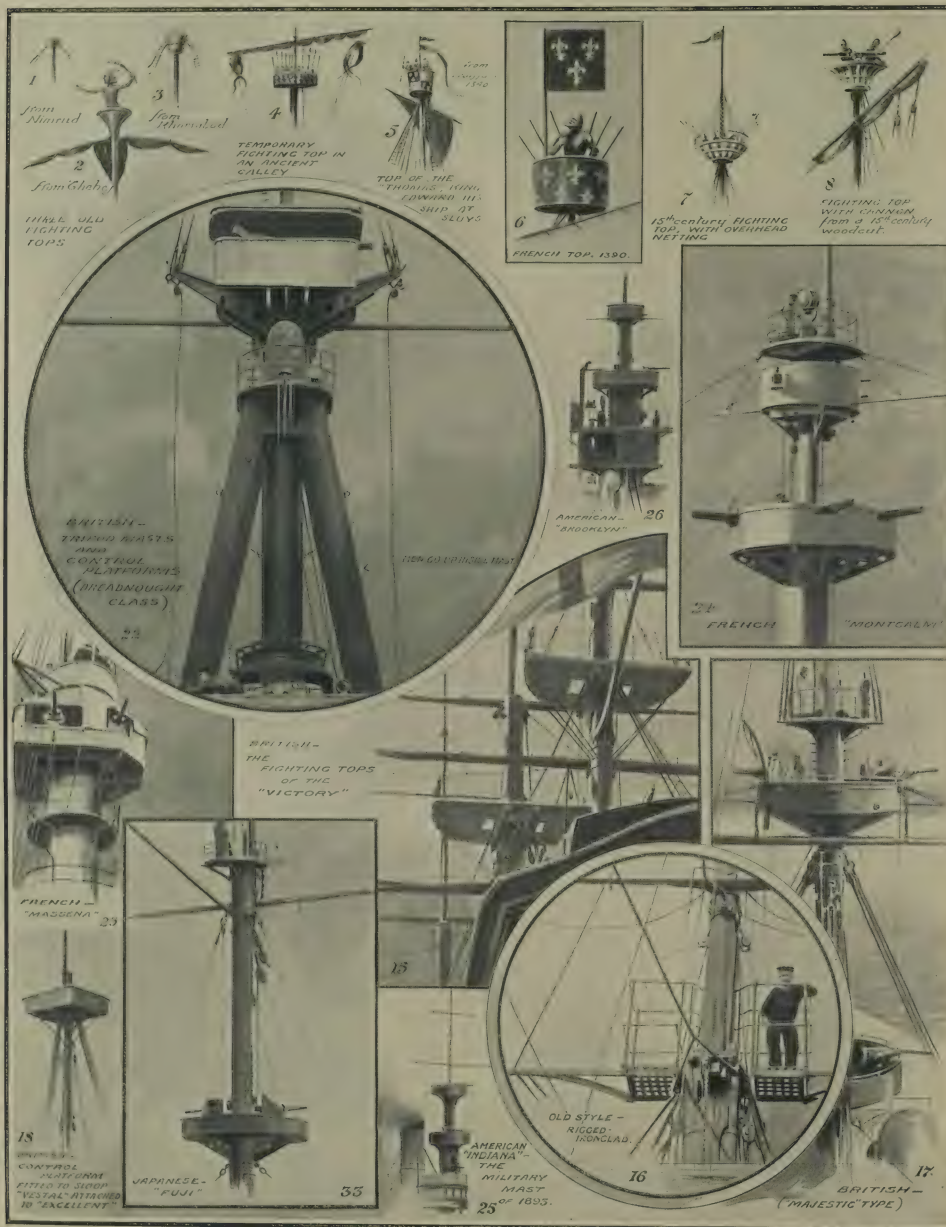
A FORBIDDEN SIGHT: THE INTERIOR OF A SUBMARINE.



A SECRET THAT IS SACRED TO THE NAVAL MAN: INSIDE A SUBMARINE.

There are now in the British Navy some sixty submarines, in four different groups: the "A," "B," "C," and "D," each larger than, and an improvement on, the earlier set. Their arrangement and mechanical details are a jealously guarded secret, and during the forthcoming Thames display nobody will be allowed to enter the submarines. Four of the "C" class will moor off the Houses of Parliament. The "C" class are all at sea, and have proved very successful. They are 135 feet long and have an extreme depth of 12 feet, have two torpedo-tubes, with internal combustion engines of 600-h.p., capable of 15 knots speed on the surface, and from 9 to 10 knots when submerged. The earlier submarines cost £30,000 each; the later between £40,000 and £60,000. In our photograph can be seen some of the leading features of the interior of a submarine. Overhead is the commanding officer's platform (1), and the steering-wheel (2) with which he navigates the vessel, either—if running on the surface—looking directly through the sighting ports in the conning tower, or—if running submerged—by means of the "periscope" tube, which transmits the view of what is happening on the surface through a series of lenses down on to a plane-surface in front of the officer. To the right is the interior tiller-wheel for the vertical rudders (3), and below it the wheel to direct the horizontal rudders (4), to regulate the depth at which the submarine should move. On the left is the indicator (5), to show the depth at which the vessel is proceeding and any deflection of the vessel from the horizontal. On the right and left, at the sides, are the air-tanks (6) and "flasks" holding the compressed air for firing the torpedoes.

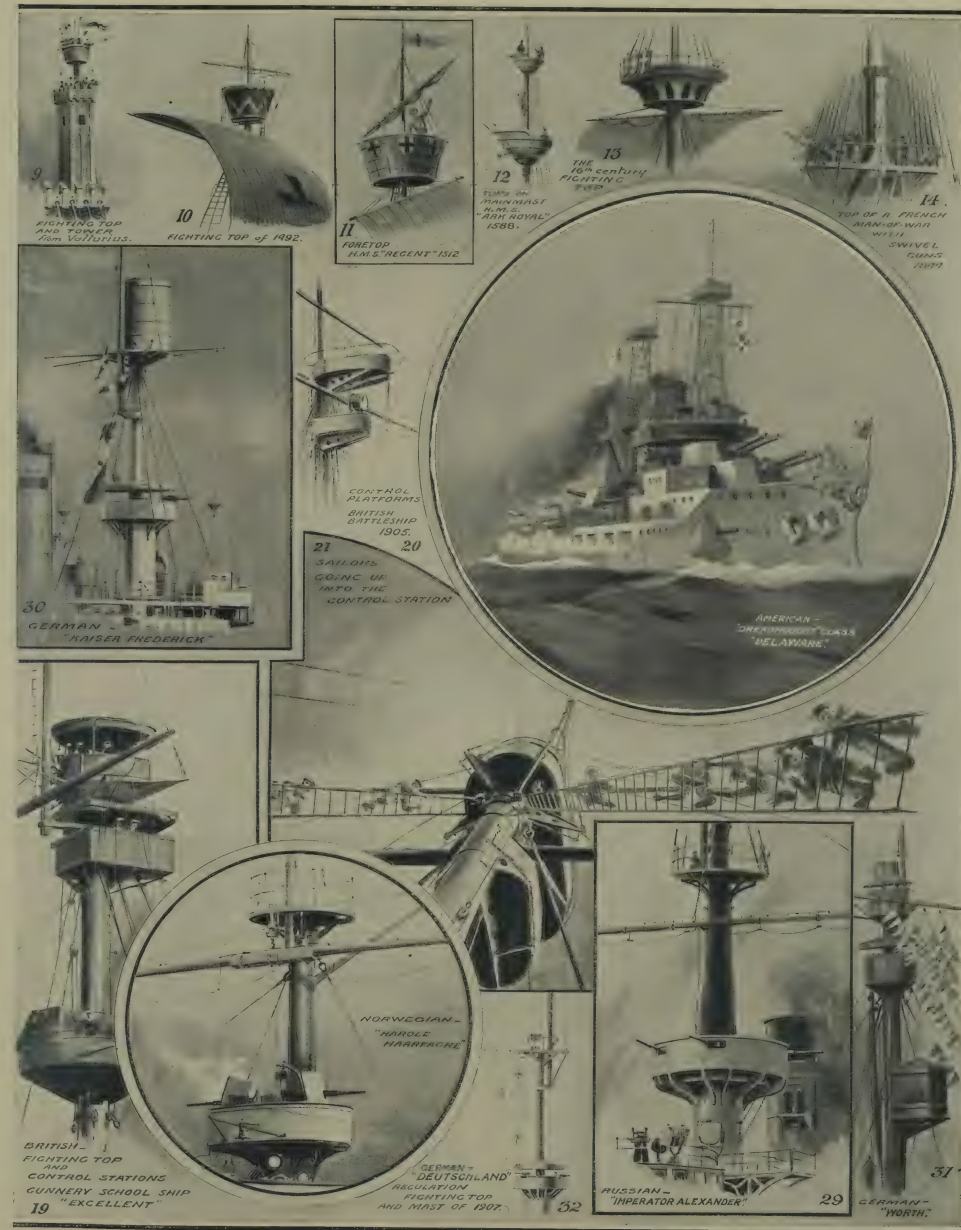
FROM THE STATION OF ARCHERS AND SLINGERS TO THE PLACE FROM



AS THEY WERE IN THE DAYS OF NEBUCHADNEZZAR AND THE PHARAOHS, AND AS THEY

The evolution of the "fighting-top," as here depicted, shows at the outset once more the truth of the old adage that "there is nothing new under the sun." Nos. 1, 2, and 3 represent tops, manned by archers and slingers, carried at the mast-heads of the war-ships of Nebuchadnezzar and the Pharaohs three centuries before the Christian Era. The Greeks and Romans did not use fighting-tops; their tactics were swift dashes with oar-propelled ships, to ram and sink the enemy. Fighting-tops were reintroduced under the Byzantine Empire, and a late form (fourteenth century) is shown in No. 9. From the eleventh and twelfth century Byzantines, the Crusaders brought the idea into Western Europe, and Nos. 4 to 8 and No. 10 show the general form adopted in England and France for the "top-castles," as they are called by old writers, with which the war-ships of Edward III. were fitted at Sluys, and indeed all war-ships down to the time of Henry VII., which saw the introduction of three-masted war-ships carrying cannon on the broadside. The battles of the Middle Ages were fought out under sail, ship ranging alongside ship to grapple and board and decide the day hand to hand. The topmen had plenty of scope in such circumstances to make things "hot" for their enemies on the deck of a hostile vessel with arrows, darts, and heavy stones. When the man-

WHICH THE GREAT GUNS ARE DIRECTED: FIGHTING-TOPS OF ALL AGES.



ARE IN THE REIGN OF KING EDWARD VII: FIGHTING-TOPS OF TWENTY-TWO CENTURIES.

of-war with portholes and tiers of cannon replaced the old medieval fighting-ship, the tops were retained. The first form of top adopted, as shown in Nos. 11, 12, 13, which lasted until the end of Queen Elizabeth's reign, was practically the same as the older type in its later forms. Nos. 14 and 15 show the general type of tops in vogue (with minor modifications) for nearly two and a half centuries, from James I. to the passing of the old order of wooden sailing-ship fifty years ago. The transition stage, the normal type of top as seen in our earlier ironclads and war-ships in general down to about 1885, is shown by No. 16. The modern fighting-top, carrying machine and light quick-firing guns, reached its highest development between 1890 and 1903 in our own "Royal Sovereign," "Majestic" and "Formidable" classes of battle-ships (Nos. 17), and showed in the typical forms shown by Nos. 23-26, 28-31, and 33. The introduction of the masthead "fire-control" system, and the necessity for reducing what might prove to be dangerous top-hamper, as proved by the results of the American war with Spain and the Russo-Japanese War, led to the gradual abolition of the fighting-top and its replacement by the modern "control-top," as it is termed, in various forms, entirely for the purposes of directing the aim of the guns in the barbettes and batteries below (Nos. 18-21 and Nos. 27 and 32).

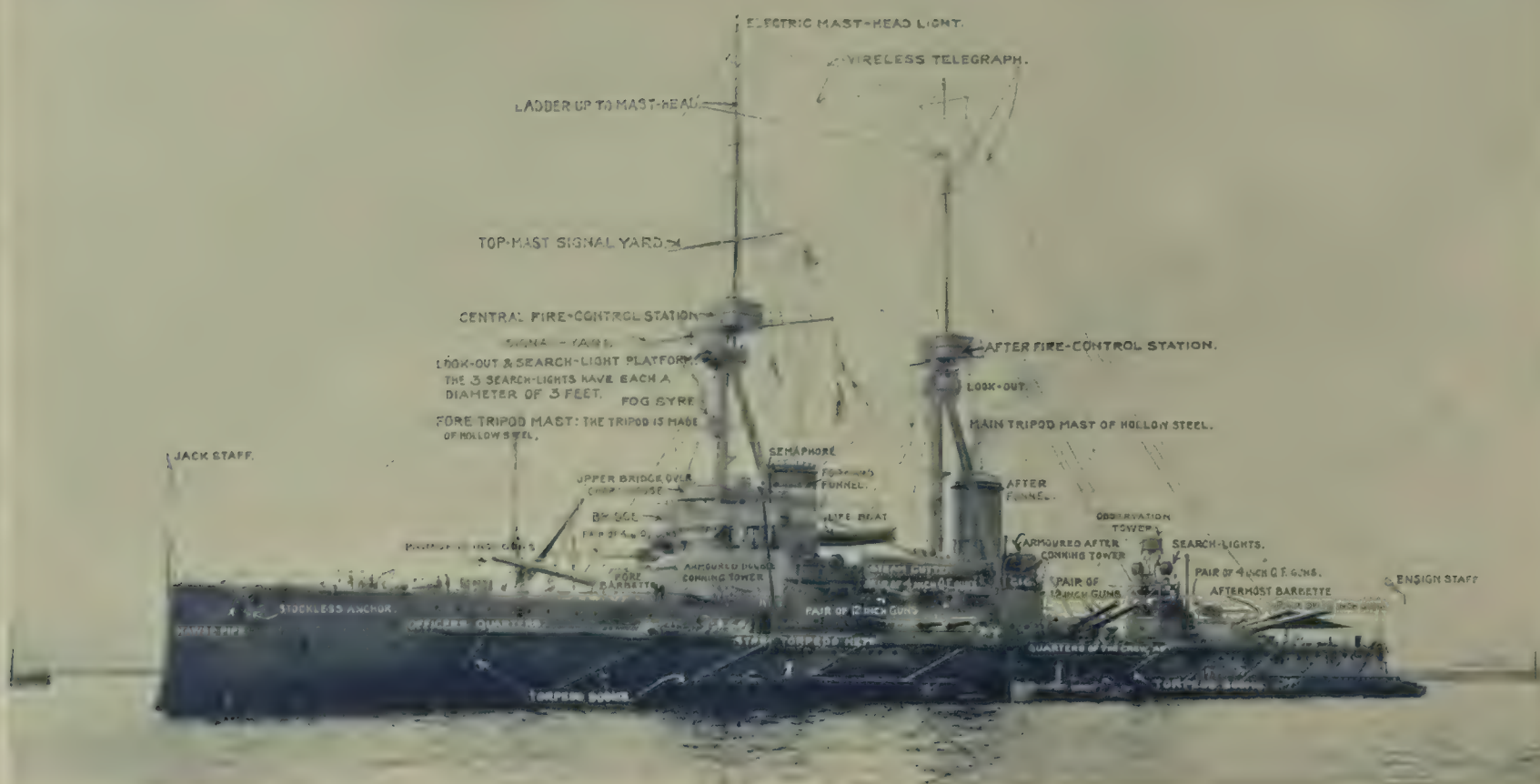


FROM THE NORE TO THE HOUSES OF PARLIAMENT: THE HOME AND ATLANTIC FLEETS—THE POSITION OF THE VESSELS IN THE THAMES DURING THE DISPLAY.

Never before, it goes without saying, has such a vast armada of war-ships assembled in the Thames, and the present generation is not likely to see again such a sight. No fewer, all told, than a hundred and forty-nine ships of war will take part in the display, of which number twenty-nine are first-class destroyers, and Westminster six second-class and two third-class cruisers, four "acouts," one gun-boat, four destroyers, six torpedo-boats, and six submarines. Some of the smaller craft could be navigated higher up the river—as far up as Windsor and Reading for the destroyers, and above Oxford for the torpedo-boats. To get a general idea of the display and what it represents in power and national treasure, here are some figures. There are twenty-four first-class battle-ships present at the Review, each of which cost more than £1,000,000 to build, and cost more than £100,000 a year to maintain. The battle-ships alone—are just 19,000 officers and men, and they carry 55,700 tons of coal and stores, and in some of them are 1,000 tons of ammunition. The battle-ships of all are the three sister Dreadnoughts—"Bellerophon" (or "Billy Ruffin," as the sailors call her, just as their forefathers used to call the famous hardest fighter of Nelson's fleet, the "Téméraire" and the "Superb," which last was only completed last month. The oldest and smallest battle-ship is the "Albion," of

12,950 tons, built at the Thames Ironworks in 1901. There are sixteen armed cruisers in the display, ranging from the three Gladstone-class cruisers the "Indomitable," "Inflexible," and "Invincible" the newest of which, the "Invincible," was only completed last March, each of 17,350 tons; displacement, down to the "Derwick" and "Donegal" of 9800 tons each, members of the famous group of "County Cruisers," introduced by the late Lord Goschen ten years ago. The sixteen cruisers represent just 20 millions sterling, are manned by 12,500 officers and men, and show between them 41,200 tons of coal and oil for fuel. Besides these, there are on view nineteen unarmoured cruisers and "scouts" manned by 6500 men; two repair ships; forty-eight torpedo-boats; just under 3000 officers and men; six torpedo-boats; and no fewer than thirty-four submarines, manned by 442 men and representing 1,200,000 sterling. To sum up: the display represents in cash, in cost of the ships, in the value of the armaments, and in the number of men sent to sea, a fleet of 100,000 tons, 100,000 men, 100,000 guns, engines, guns, and armour, just £62,178,693. The total strength of the crews on duty numbers 42,058 officers and men—three times as many as the crews of all Nelson's fleet at Trafalgar.—[DEVELOPED BY HAROLD OAKLEY.]

GREATER EVEN THAN THE "DREADNOUGHT": THE "SUPERB."



THE MOST POWERFUL WAR-VESSEL IN THE WORLD: THE IMPROVED DREADNOUGHT "SUPERB" IN DETAIL.

The "Superb" represents the most modern and powerful battle-ship in active service in any navy. She is officially styled an "improved Dreadnought," and, with her sister-ships the "Bellerophon" and the "Téméraire," she differs in important respects from the prototype ship. The "Dreadnought" is of 17,900 tons displacement; the "Superb" of 18,600 tons. They are all of twenty-one knots speed. The "Superb's" armour-belt runs from end to end at the water-line; it is of Krupp steel hardened by the latest special process, and is eleven inches thick over the central body, six inches thick at the bows, and four inches at the stern. Eleven inches of Krupp steel is equal in resisting power to thirty inches' thickness of wrought-iron. Two feet of wrought iron was the thickest ever placed on a ship, carried by the famous "Inflexible," Sir John Fisher's ship at the bombardment of Alexandria in 1882. The "Superb" carries ten 12-in. 58-ton guns, like the "Dreadnought," but her "anti-torpedo" armament of sixteen 4-in. 25-pounders, mounted on the turrets and at various points on deck, is much superior to that of twenty-seven 12-pounders on board the "Dreadnought." The "Superb" has ten searchlights, also for "anti-torpedo" defence, of the newest 36-in. diameter type, and one of 24-in. diameter for signalling. She cost upwards of £1,800,000 to build and equip.—(PHOTOGRAPH BY GALE AND FOLDEN.)

"LIKE THE HURRICANE ECLIPSE OF THE SUN": WAR-SHIPS IN ACTION.



A GREAT BROADSIDE · A WAR-SHIP AT BATTLE PRACTICE.



DURING THE FIRING: THE AFTER-TURRET OF
A BATTLE-SHIP IN ACTION.

The second of these two photographs in particular brings home to the layman the truth of the lines from Campbell's "Battle of the Baltic": "As each gun from its adamant lips spread a death-shade round the ships, like the hurricane eclipse of the sun." It shows a great cloud of smoke enveloping the ship after the firing of a 12-inch gun.

THE RED CASK OF SAFETY: MANŒUVRING IN A FOG.

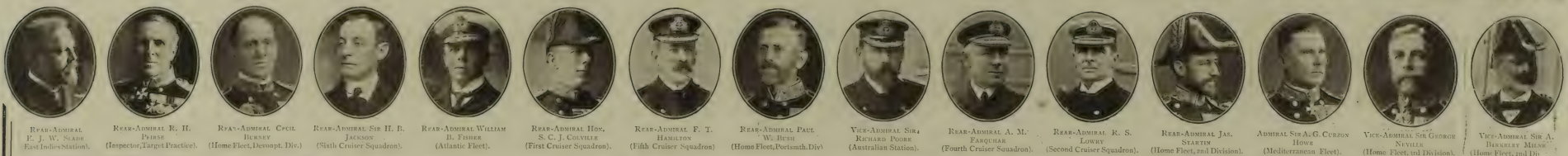
DRAWN BY C. M. PADDAY.



FOLLOWING THE FOG-BUOY: HOW STATION IS KEPT THROUGHOUT A FLEET.

Navigation in a fog at sea is always perilous, even for single ships, but the dangers are increased a hundredfold for a fleet. Sound-signals of every kind are in use, mostly by means of fog-horns and syrens, and also by firing guns from the flag-ship, the rounds and intervals between each report being regulated by code so as to convey exact meanings to all concerned. At the same time, to prevent collisions, the first precaution taken on board every ship of a fleet, is to put a "fog-buoy" overboard the moment a fog comes on. The buoy consists of a large cask, painted red, which is attached at the stern of every ship by a rope of grass fibre, a material that floats on the surface. Each ship pays out astern a length of rope equivalent to the intervals kept between the ships of the fleet—two cables (four hundred yards) in "close order," four cables in "open order." The cask should float at the bows of the ship next astern, splashing up the water as it is towed over the waves. Station is kept throughout the fleet, whatever the speed of the ships, by every vessel keeping her bows close up to the splash of the fog-buoy towing in the wake of her immediate leader in line. For purposes of illustration, we have chosen a moment at which the fog is clearing somewhat.

HEARTS OF OAK AND SINEWS OF STEEL: THE WOODEN WALLS AND THE ARMoured FORTS OF BRITAIN: WITH THE ADMIRAL COMMANDING



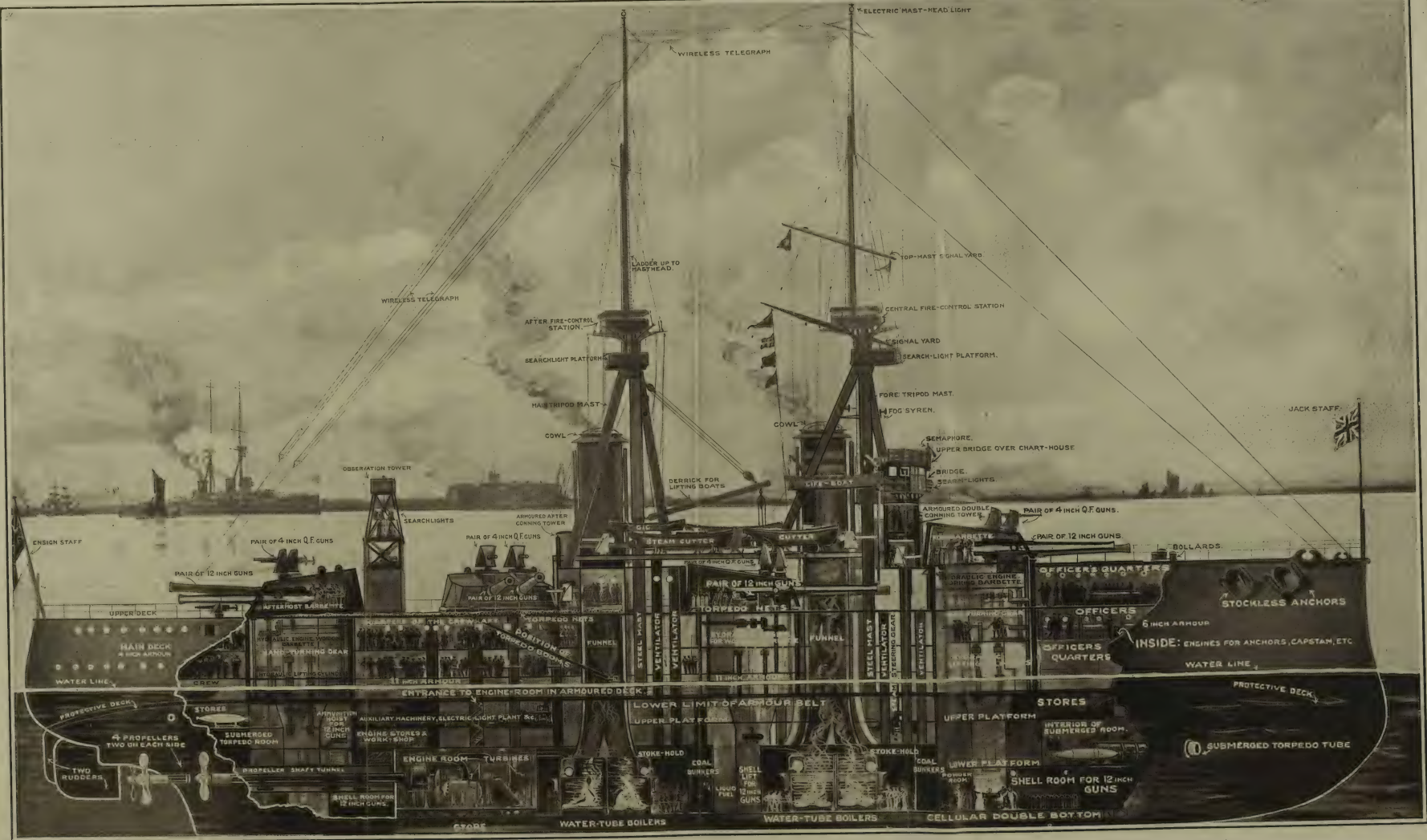
THE SHIPS ASSEMBLED IN THE THAMES, THE OTHER FLAG OFFICERS IN COMMAND AT SEA, AND THE LORDS OF THE ADMIRALTY.



NELSON'S FAMOUS FLAG-SHIP, THE "VICTORY": ITS INTERIOR.



THE "VICTORY" AND THE "DREADNOUGHT": A COMPARISON.



THE IMPROVED "DREADNOUGHT," THE "SUPERB": ITS INTERIOR.

There were just the same number of men on board the "Victory" at Trafalgar—850—as there are on board the "Superb" to-day, and our illustration shows in clear contrast the differences in detail that a century has made on board ship between the old-time man-of-war of the first-rate and the new, in regard to general interior arrangements. On the poop, right aft, the mizzenmast was stationed in section, as well as certain sailors as "small-arm men" and to attend to the trimming of the yards and braces and to see to repairing damages aloft, and fight the carronades on the poop between wharves. With them were the signallers, under one of the Lieutenants. It was from the poop of the "Victory" that Nelson's historic message was hoisted: "England expects that every man will do his duty," in twelve separate hoists of flags. On the quarter-deck Nelson himself paced up and down—until he fell—with Captain Hardy at his side, and with a midshipman as aide-de-camp in close attendance. The Captain of the fore-castle was the boatswain, in charge of a small party of sail-trimmers, whose post would be near the four sailors who attended the wheel. On either side of the quarter-deck were men fighting the guns—12-pounders, nine men to a gun, and with each division of five guns under the charge of a midshipman. Right forward broadside altogether. There were also guns in the poop cabin (Captain Hardy's quarters), Nelson's cabin, and the large apartment just below that, the ward-room, where the Lieutenants lived. In clearing for action the wooden bulkhead screens dividing these parts of the ship off from the men's living-quarters were taken down and stowed in the hold, making the whole deck quite clear and open from the bows to the stern windows. The guns on the lower-deck were of iron, 24-pounders. Those on the lower-deck were 32-pounders, each gun being manned by fourteen men. As on the quarter-deck, every five guns was a midshipman's command, each entire deck of guns being, at the same time, under the general control of two Lieutenants. Finally, the cockpit, where the wounded were attended to and where Nelson died, was ordinarily the midshipmen's abode.

Eight hundred and fifty men—blue-jackets and marines, artificers and stokers, with their officers—have their quarters in the battle-ship "Superb," whose general interior arrangements are shown at a glance here. In action they are dispersed all over the vessel: from the stokehold and magazines, far down below the water-line, to the men working the 12-inch 58-ton guns in the turrets, and the range-officers and their parties stationed in the "control-tops," a hundred and twenty feet above the water, engaged in watching the shots drop, and telephoning or telegraphing the results to the gunners below. By a system of small electric motors in the control-tops the officer posted there can aim the turret-guns himself, each motion, guided by the hand of the officer in the top, for training the guns being transmitted directly and simultaneously to point the guns, and also to fire them, independently of the men actually in the turrets. Her complete electric installation is one of the features of the "Superb." Electricity works the guns and everything on board except the propelling engines. There are upwards of a hundred and forty miles of electric wiring throughout the ship, carried in cables nine inches in circumference, from which smaller branch cables diverge every few yards. The officers of the "Superb" occupy electricity: the ammunition-hoists, anchor-lifting, lighting of all compartments, firing of the torpedoes, search-lights, hoist-lifting, pumping of water; and in each case there is duplicate machinery for working by hand, in case of a breakdown in the electric installation. As in the "Dreadnought," the officers of the "Superb" occupy the forepart of the ship, so as to have immediate access to the bridge and chief "fighting" stations at any moment while the men live aft, and use the quarter-deck, in all previous types of war-ships sacred to the officers, as their own habitat. Yet another "point" of the "Superb"—one of her improvements on the "Dreadnought"—is the "double conning-tower." The upper tower is a duplicate of the lower in its fittings, and is armoured with a complete wall of 12-inch steel. The two communicate through a trapdoor in the floor of the upper tower (which is itself of 6-inch Krupp steel). Finally, the "Superb" is 490 feet long, just the length of St. Paul's Cathedral, and 82 feet wide, the width of Northumberland Avenue.

FROM "DREADNOUGHT" TO SUBMARINE: VESSELS REPRESENTATIVE OF EVERY CLASS OF WAR-SHIP TO BE SEEN IN THE THAMES DURING THE GREAT NAVAL DISPLAY.

DRAWN BY OUR SPECIAL ARTIST, NORMAN WILKINSON.



NORMAN WILKINSON 1909

1. DREADNOUGHT (1906), BATTLE-SHIP

(Admiral May's flag at mast-head). Two funnels; two tripod masts (after one very short); long forecastle; five turrets (four visible on either side of ship); ten 12-in. guns, forty-five feet long each, in each turret.

2. BELLEROPHON (1905), BATTLE-SHIP

[Also "Supern" and "Téméraire".] Identical with "Dreadnought" in appearance, except for two tripod masts of the same height (one between the funnels, just before the second funnel).

3. LORD NELSON (1906), BATTLE-SHIP

[Also "Agamemnon".] Hull shorter than "Dreadnought" type. Two funnels; two masts of equal height; five turrets, with two guns in each, visible on either side; turrets on forecastle and quarter-deck mount 12-in. guns; the three turrets close together in the middle of the vessel mount 9.2-in. guns.

4. INDOMITABLE (1907), CRUISER BATTLE-SHIP

[Also "Inflexible" and "Invincible".] Three heavy-looking funnels, the third smaller and some way aft of the other two; three turrets show at each side, mounting each a pair of 12-in. guns; two tripod masts; long lofty forecastle as in "Dreadnought".

5. KING EDWARD VII (1903), BATTLE-SHIP

[Also "Britannia", "Hindustan", "Dartmouth", "Hibernia", "New Zealand", "Commonwealth", and "Africa".] (Flag of Vice-Admiral Milne). Two very large funnels; two masts. Considerably shorter vessel than the "Dreadnought".

6. PRINCE OF WALES (1902), BATTLE-SHIP

[Also "Queen", "Implacable", and "Formidable".] (Flag of Prince Louis of Battenberg). Conspicuously high funnels (two); two masts, with lower tops and control-top on foremast; flat-sided turrets; quick-firing battery amidships between the turrets.

7. SHANNON (1906), ARMOURD CRUISER

[Also "Defence" and "Minotaur".] Four funnels; two light masts with two tops on each; high forecastle.

8. GOOD HOPE (1901), ARMOURD CRUISER

[Also "Leviathan".] Four lofty funnels; masts without fighting-tops; three double-sided casemates projecting along each side of hull.

9. BERWICK (1902), ARMOURD CRUISER

[Also "Donegal".] Three funnels; two light masts without fighting-tops; three double-sided casemates projecting along each side of hull.

10. ASSISTANCE (1901), REPAIR-SHIP

A single new ship built of steel, of 800 tons displacement. She is fitted up within with a foundry and workshops, machinery, and a complete equipment of tools, etc., for her special duty. She carries ten small quick-firing guns.

11. SKIRMISHER (1905), SCOUT

[Also "Forward" and "Pathfinder".] Three funnels; one light mast; long, low hull; high forecastle. In general appearance the hull is very like that of an immense destroyer. Another "Scout", the "Adventure", has four funnels.

12. OCEAN DESTROYER, TARTAR

The newest class of all. Most of these vessels may be known by their great size, averaging 270 ft. in length, and have three squat-looking large funnels. (Two of the "Tribal" group, the "Mohawk" and the "Tartar", have four funnels). They have each one mast and two torpedo-tubes, with two 6-in. quick-firers; are manned by from sixty to seventy men; and have a speed of over 35 knots, or 40 miles an hour.

13. TORPEDO-BOAT

The most modern torpedo-boats displace 200 tons, and have 26 knots speed (30 miles an hour); they carry each two 12-pr. quick-firers.

14. SUBMARINE ("C" CLASS)

The pick of our newest submarines at the Review is the "C" class, mostly known by the letter "C" conspicuously marked on the hull. They each displace 315 tons; have a submerged speed of 13 miles an hour; are armed with two bow torpedo-tubes, and carry 15 tons of petrol each (or 4500 gallons), allowing them to cruise over 1500 miles of sea.

Those vessels that are to be in the Thames during the great Naval display represent ably that greatest of all fighting forces—the British Navy. Seeing it, the Briton will be able to say, with Kipling: "And the whole thing was my very own (that is to say yours): mine to me by right of birth. Mine were the speed and power of the hulls, not here only, but the world over; the hearts and brains and lives of the trained men; such strength and such power as we and the World dare hardly guess at, other breed with this engine at their disposal would have used it savagely long ago. In our hands it lay as harmless as the levin rods of the Vrilya. Thus I stood, astounded at my own moderation, and counted up my possessions with most sinful pride." This is one thing the Briton may note about the "Dreadnought," the mighty flag-ship of this mighty fleet: in battle her ordinary range would be from ten to twelve thousand yards, the aiming being done from the control-tops on the masts. Her speed of 21 knots (three knots faster than that of any preceding battle-ship) enables her to overtake and hold under fire at that range any ship she may engage. The "Bellerophon" is a slightly larger "Dreadnought," but identical in fighting essentials. Her sisters, the

"Superb" and "Téméraire," are next her in line. Then we have "Dreadnought's" rivals, the "Lord Nelson" and "Agamemnon," sister-ships, each of 16,500 tons (1400 tons less than the "Dreadnought") and armed with four 10-inch and ten 9.2-inch guns throwing a broadside armament which is only in a degree less formidable than that of the "Dreadnoughts." The "Indomitable," "Inflexible," and "Invincible" are cruisers, "all big-gun" vessels like the "Dreadnought" (eight 12-inch guns, 7-inch Krupp steel armour, and 27 knots, or 31 statute miles, speed), capable of fighting in a fleet battle. The "King Edward VII," represents the latest type of our pre-"Dreadnought" battle-ships, which mount four 12-inch and four 9.2-inch guns, with ten 6-inch quick-firers as secondary armament, and cost a million and a half sterling each. The "Prince of Wales" represents the battle-ship type next preceding the "King Edwards," the ideal war-ships of ten years ago; costing a million apiece. The "Shannon" represents the final type of pre-"Indomitable" cruiser, and the "Good Hope" and "Berwick," earlier groups of armoured cruisers now in commission. The "Skirmisher" is one of the "scouts," introduced five years ago, and intended to accompany fleets in war. The "Assistance" is a "fleet repair-ship." The typical destroyer belongs to the largest or "ocean-going" class (vessels of from 800 to 1000 tons, and of upwards of 35 knots' speed). Finally, we have a torpedo-boat (some of these range up to 300 tons), and a submarine of recent type.

THE MOST DANGEROUS TACTICS: MANŒUVRING WITH LIGHTS OUT.



1. MANŒUVRING AT NIGHT UNDER ORDINARY CONDITIONS: A FULLY LIGHTED FLEET.
2. SIGNALS THAT ARE USELESS AT NIGHT: THE SPEED - CONE AND THE SCREW - REVOLUTION INDICATOR.

3. ALL LIGHTS OUT SAVE ONE SHADED LAMP ASTERN: STEAM TACTICS WITH ALL LIGHTS OUT.
4. SIGNALS THAT ARE VALUELESS AT NIGHT: THE HELM - INDICATOR.

5. A DEVICE DESIGNED TO PREVENT COLLISION DURING MANŒUVRES WITH LIGHTS OUT: AN ELECTRIC LAMP IN A BOX TOWED ASTERN BY AN ELECTRIC WIRE, TO SHOW THE POSITION OF THE NEXT VESSEL AHEAD.

Manœuvring at night without any lights showing forms part of the ordinary fleet exercise system in the Navy. Various ingenious devices are in use to enable it to be carried out with safety to the ships engaged. In daylight ordinarily there is no danger. The "revolution-indicator," by means of flag-hoists on a species of gridiron, tells ships the speed of their neighbours; and the "helm-indicator," by means of a green cone for starboard, and a red cone for port, working automatically in connection with the steering-gear, shows how each ship is steering. At night the case is altered. Two ordinary methods are shown here: one by using a shaded electric lamp suspended over the water, low down at the stern. The ship following keeps her position relative to her leader by watching the circular patch of light thrown on the white foam made by the propellers of the ship ahead, but nothing can be seen at any distance on either side. Another device is to tow an electric light in a deep-sided box, open at its rear end, and only visible to the look-out on board the ship coming up next astern.

"LIKE A MAN SWIMMING WITH A KNIFE BETWEEN HIS TEETH."

PREPARING FOR BATTLE: CLEARING A BATTLE-SHIP FOR ACTION.



1. PEACE: THE DECK OF THE "DREADNOUGHT" UNDER NORMAL CONDITIONS.

2. WAR: THE DECK OF THE "DREADNOUGHT" CLEARED FOR ACTION.

3. REMOVED FOR THE GREATER SAFETY OF THE VESSEL: "DANGEROUS" FITTINGS HEAPED UPON THE DECK OF A WAR-SHIP IN "PREPARING FOR BATTLE."

"Prepare for battle," if not exactly an every-day fleet evolution, is a very important one indeed, and takes place from time to time for every ship in commission. Its intention is that all concerned should learn how much of the inflammable material on board will have to be thrown overboard should the "real thing" happen. On the signal being made, all the bulkier woodwork on board that is movable is marked with chalk "overboard," and everything else liable to be set on fire, unless indispensable to the actual working of the ship, is sent up and stowed on the fore-castle so as to be ready for flinging into the sea at short notice. The boats are prepared to be dropped overboard, or filled with water. Wire ladders replace the ordinary wooden hatchway ladders; splinter-nettings of steel wire are stretched over the heads of those serving on the upper deck; boat-derricks are lashed in, and everything aloft made fast, the decks sluiced down and flooded all over with water. The entire decks are made clear from end to end, the bridges are deserted, the ship is steered and handled from the conning-tower and the "fighting positions" throughout, as though in actual battle. Kipling's description of a battle-ship cleared for action is very apt: "Naked and grim, like a man swimming with a knife between his teeth—a wet and streaming hull thundering through heavy, rain-hammered seas."—[PHOTOGRAPHS NOS. 1 AND 2 BY CRIBB; 3 BY BARTON.]

THE CREWLESS SUBMARINE: THE DEADLY TORPEDO.



1. LAUNCHING A DESTROYER OF "DREADNOUGHTS": A TORPEDO TAKING THE WATER.
3. A TORPEDO STRIKING THE TORPEDO-NET OF A VESSEL—TORPEDO SHOWN IN SECTION.

2. BEFORE THE LAUNCHING: A TORPEDO-MAN SIGHTING THE TARGET.
4. IN ACTION: A TORPEDO-BOAT DESTROYER SHOWN IN SECTION.

To hit below the belt is the chief "raison-d'être" of both the destroyer and the torpedo-boat, impelling deadly locomotive mines, that is what torpedoes really are. We see one here leaping from its "tube," starting on its deadly errand. Another is shown about to be fired, with the firer adjusting his aim, hand on the lever to start the torpedo as soon as the sights are "on." Then we have the torpedo itself, cigar-shaped and nearly 16 feet long by 18 inches in diameter. The numbers on the torpedo show its mechanism and arrangement. 1. Twin-screws, revolving in opposite directions; 2. Vertical rudder; 3. Horizontal rudder; 4. Bevel gear; 5. Propeller-shaft; 6. Buoyancy-chamber; 7. Starting-gear, the engines of which are set off automatically by a catch as the torpedo leaves the tube; 8. Starting-pin; 9. Engine-chamber; 10. Balance-chamber; 11. Gyroscope (keeping the torpedo straight for its aim); 12. Weight; acting on the horizontal rudder, and controlling the depth of running; 13. Compressed-air chamber (350 lb. pressure to the square inch); providing the motive-power for the engines; 14. "War-head"; 15. Gun-cotton charge, 260 lb.; 16. Primer (to fire the gun-cotton), fulminate of mercury; 17. Striker, which, being driven in on impact with ship attacked, fires the torpedo; 18. Safety-pin while in the magazine and in the tube: withdrawn at the last moment; 19. Fan revolving in the water to unscrew and free the striker for action.—[PHOTOGRAPHS BY SILK.]

INVENTIONS THAT MAKE GREAT MARKSMEN: TEACHING GUNNERY

WITH THE AID OF ADMIRAL SIR PERCY SCOTT'S INGENUOUS CONTRIVANCES.



1. A 12-INCH GUN FITTED WITH THE "KNOCKER-OUT."

2. TEACHING GUNNERY WITH THE AID OF THE "DEFLECTION-TEACHER."

3. THE FAMOUS "DOTTER."

To Admiral Sir Percy Scott British naval marksmanship owes everything—to his personal initiative and tuition in the first place; next, to his wonderful inventions for practical training. Three of his devices are shown here. The "deflection-teacher" is a contrivance consisting of an ordinary rifle, taking miniature ammunition, fitted on top of a ship's barrette and firing at a rotatory target, a box of sand catching the bullet. The "dotter" is a contrivance attached to a gun, whereby an electric pencil connected with the firing trigger dots on a cardboard target, at every pull of the trigger, the exact spot that a shot, aimed at the bullseye, would have actually hit. The "knocker-out" shows the outline of a battle-ship on a ground-glass screen attached to a gun, and the object of the man aiming the gun is to "knock-out" various parts of the vessel in succession. With every pull of the firing-trigger (aiming according to order), a pointed implement, called the "splosher," darts forward and marks a spot of ink on the part of the ship that the shot, if fired according to the man's aim, would have really hit.

HAVILAND'S SERIES OF THEATRICAL PORTRAITS.

DRAWN BY OUR SPECIAL ARTIST. FRANK HAVILAND.



NO. XXVIII.—MR. GERALD DU MAURIER AS JOHN SHAND IN "WHAT EVERY WOMAN KNOWS."

Mr. Gerald Du Maurier, a son of the late George Du Maurier, the well-known "Punch" artist and the author of "Trilby," first appeared on the stage in 1894, when he was with John Hare at the Garrick in Sydney Grundy's "An Old Jew." Since that time his successes have been many, and perhaps the greatest of these is his John Shand in "What Every Woman Knows."

Mr. Du Maurier was born in 1873, and was educated at Harrow. He is married to Miss Muriel Beaumont.

AN EXPLORER'S SHIP CARRIED ON THE DECK OF A CRUISER.

THE REPLICA OF HUDSON'S "THE HALF MOON," WHICH HAS BEEN TAKEN TO AMERICA.



THE FORE-PART OF THE "HALF MOON."



THE "HALF MOON."



THE FORECASTLE.



THE QUARTER-DECK.



BETWEEN DECKS, 'MIDSHIPS, AND GALLEY.



BETWEEN DECKS—FORWARD.

At the celebration of the Hudson-Fulton centenaries, which is to take place in America in the autumn, a replica of Fulton's steam-boat, the "Clermont," and a replica of Henry Hudson's "De Halve Maen" ("The Half Moon") will proceed up the Hudson River together from New York to Albany. The latter replica was taken to America from Rotterdam as deck cargo on a Dutch cruiser, the "Soestdyk." The "Half Moon" was the vessel on which Henry Hudson, the famous English navigator, set sail on March 25, 1609, in company with the "Good Hope," in the service of the Dutch East India Company, on an attempt to discover a north-east passage, which he had been unsuccessful in finding in the previous year. During the voyage his crews mutinied, and the "Good Hope" returned. The "Half Moon" proceeded, and sailed across the Atlantic to Nova Scotia. Later she went southward, and the coast was explored as far as Chesapeake Bay. In September of the same year Hudson explored the river that was afterwards given his name, and ascended it almost as far as the site of Albany. So small was the "Half Moon" that it was impossible to stand below decks, and the crew had to squat when below. The men's quarters in the fore-castle were only four-and-a-half feet high, and contained five bunks, in each of which, on occasion, two men slept. When it was necessary to punish sailors the delinquents were placed in the gallery under the bowsprit, and then had to face the force of the waves.

A VESSEL WITH WAVE-LIKE SWELLINGS; AND ROBERT FULTON'S STEAM-BOAT.



A VESSEL THAT HAS TWO WAVE-LIKE SWELLINGS ALONG HER SIDES: THE S.S. "MONITORIA."



LAUNCHING A UNIQUE VESSEL: THE "MONITORIA" AS SHE LEFT THE WAYS.

Instead of the broadside of the "Monitoria" being upright, as is usually the case, two wave-like swellings run nearly the whole length of the submerged sides of the ship. It is claimed that, thus, the vessel gains in sea-worthiness, and has a greater carrying capacity and a greater speed than ordinary vessels of equal horse-power. The "Monitoria" was made to the order of the Ericsson Shipping Company, of Newcastle, and has just been launched by Messrs. Osbourne, Graham and Company, of Sunderland.—[PHOTOGRAPHS BY FRANK AND SONS.]



ROBERT FULTON'S STEAM-BOAT, A REPLICA OF WHICH HAS BEEN LAUNCHED FOR THE HUDSON-FULTON CENTENARY.]

In the autumn there is to take place in America a celebration of the centenary of Henry Hudson, who in September of 1609 explored the river that was afterwards named after him, and of Robert Fulton, who made a successful trial trip in his steam-boat "Clermont," from New York to Albany on the Hudson River, in August 1807. For this celebration there has been built a replica of the "Clermont," which was launched the other day, and named by the great-granddaughter of the inventor. Robert Fulton, famous as an American engineer, made his first experiment in steam-boat navigation on the Seine in 1803, but the vessel sank on being launched. In 1806 he went to New York, built the steam-boat "Clermont," and made the above-mentioned trip from New York to Albany, accomplishing the journey of 150 miles in 32 hours. On the occasion of the centenary, the replica of the vessel will repeat the journey, together with a replica of Hudson's vessel, the "Half Moon."

ETON V. HARROW: A DRAWN MATCH AT LORD'S.

DRAWN BY OUR SPECIAL ARTIST, FRANK REYNOLDS.



MR. R. H. TWINING, CAPTAIN OF THE ETON ELEVEN, AND MR. A. H. LANG, CAPTAIN OF THE HARROW ELEVEN:
AND SKETCHES OF THE PLAY.

The Eton and Harrow match began on Friday of last week, and ended in a drawn game. At the close of the first day's play, Harrow, who won last season by ten wickets, had scored 135 in their first innings, and 76 in their second innings; while Eton had scored 92 in their first innings, and 67 for seven wickets in their second innings. On what should have been the second day of the match the ground was so wet that the game had to be abandoned.



TO the average English traveller of the eighteenth century, or the first part of the nineteenth, Brittany was practically as unknown as Tartary or Tibet. On this side of the Channel the exigencies of almost perpetual warfare compelled us to remain in complete ignorance of the natural beauties and historical treasures hidden behind the bulwarks of Brest, the forts of Camaret and Quiberon, and the formidable ramparts of Belle Ile. Our ancestors were far more familiar with the topography of the Black Sea or the Caspian than that of the Morbihan Archipelago and its countless islands and ruins of almost unrivalled interest. The international situation was very happily summed up in the current caricatures of the period, two of which are reproduced in the Great Western Railway travel-book entitled "Beautiful Brittany," which is at the present moment doing so much to make the citadels of the past the travel-centres of the present and the future. The era of chronic distrust and almost perpetual hostilities is over; swords have been turned into pruning-hooks, and in times of piping peace crowds of delighted English holiday-makers are revelling in the charms of that quaint and curious corner of Europe which the skill of Vauban, the aggressive diplomacy of the "Sun King," and the unbridled ambition of Napoleon converted into a French Gibraltar.

The Newest Continental has for its centre and starting point the fortress-town (still an arsenal of first-rate importance) upon the effective blockade of



Three Pleasant Alternatives are offered to those who avail themselves of the travel facilities afforded by the tempting programme for which the Great Western Railway is responsible. Having brought your sojourn at Brest, be it long or short, to an end, you can return to England *via* Paris by the northern route, which we will call that of the Country of Cathedrals, passing through Landerneau, Morlaix, St. Brieuc, Rennes, Laval, Le Mans, Chartres, and Versailles; by the southern route, that of the Country of Castles, which will enable you to see Quimper, Auray, Lorient, Vannes, Nantes, Angers, Saumur, Tours, Blois, and Orleans, as well as the famous châteaux of the Loire Valley; or to make a halt of three or four days at Vannes, examine at leisure the endless attractions of

The "Little Sea" and its Enchanted Islands, and return home either as you came or along the coast by way of the Bay of Douarnenez and Le Fret to Brest. There is not one of the places now named which is not well worth seeing, and in which the intelligent holiday-maker cannot discover some new feature. As a matter of fact, he will find in this new Continental playground a perfect plethora both of amusement and instruction, be he artist, sportsman, antiquary, ecclesiologist, or only a seeker after rest, change, and health. Three-fourths of the names mentioned in connection with the "Cathedrals" and the "Castles" lines of France are sufficiently familiar to most people, but some stress must be laid on the old-world charms of Landerneau, Morlaix, St. Brieuc, and



WHERE RICHARD CŒUR-DE-LION "LIES VAINLY GREAT": THE ABBEY AT FONTEVRAULT.

The Abbey of Fontevault was founded about the end of the eleventh century. Richard Cœur-de-Lion, who died April 6, 1199, in the words of William Watson "lies vainly great at Fontevault." His effigy is in the Abbey, with those of Henry II. and his wife Eleanor, and Isabella, wife of King John.

which, Nelson and his contemporary admirals and captains bestowed so much care and vigilance. The situation of Brest at the extremity of the "Goulet" or "Throat" which a century ago protected the ships upon which Napoleon relied for the carrying out of his attack on England, makes it almost necessary for every Brittany pilgrim to stand a short time there before going further afield. Not only does Brest itself possess many buildings well worth examining, but it is, both by rail, road, and water, within easy reach of the picturesque peninsulas of Crozon and Le Conquet and the fruitful strawberry-fields of the Elorn River, while close by, at Landerneau, one gets a glimpse of a typical Breton town, where the clock seems to have stood still for quite three centuries.

HALLOWED BY MEMORIES OF THE MAID: THE HOUSE OF JEANNE D'ARC AT ORLEANS.

The memory of Joan of Arc still dominates the city which she saved. Among the sights of Orleans is the House of Annunciation, where she was received on her arrival by Jacques Boucher, Treasurer of the Duke of Orleans, Charles VII. afterwards lodged in it. The Jeanne d'Arc Museum is in the house known as that of Agnes Sorel.



THE CHESTER OF BRITTANY: MORLAIX, FAMED FOR ITS PICTURESQUE OLD HOUSES.

Morlaix is one of the most curious and interesting old-world places in Brittany. Many of its ancient houses, rivalling in their exquisite detail those of Chester, Hereford, or Gloucester, date from the sixteenth and even the fifteenth century. They contain a wealth of wood-carving, and entire streets are composed of houses of this kind.

Rennes, where a summer and autumn holiday may be spent amongst the venerable relics of a glorious past, amidst a hospitable people, who are sufficiently alive to the requirements of the present in the matter of hotel improvement. But beyond Quimper—at once the Canterbury and the Venice of Finisterre—and to the south of Lorient and Auray, there lies

In the Heart of a well-defined district which is sure to occupy a prominent place in the travel-programmes of the near future. Possibly not one British holiday-maker in a thousand has heard either of Vannes or the Inland Sea of Morbihan. Fewer still know anything of the Island of Monks, of Port-Navalo, of Sarzeau (the birthplace of Le Sage), of Suscinio (the home of Arthur of Brittany).

[Continued overleaf.]



ONCE CALLED AUTRICUM, THEN CARNUTUM, NOW CHARTRES: THE CATHEDRAL FROM THE PLACE CHÂTELET.

The Cathedral of Chartres was built in the twelfth and thirteenth centuries. The oldest part is the west front. Over 160 of the great windows retain their thirteenth-century glass, and form an unequalled display of colour. Henry IV. was crowned King of France at Chartres in 1593. In 1870 it was taken by the Germans.

and of St. Gildas, where Abélard lived, laboured, and wrote. To most people, the glorious mediæval ruins and prehistoric remains to be found at Gavrinis, Locmariaquer, and, above all, at Carnac, will be a veritable revelation. If one has heard at all of Quiberon or Belle-Ile-en-Mer, it is only in connection with the naval battles of Georgian times and the traditional rivalry of Breton and British sailors. And yet there lies within four hours of Brest, twelve of Plymouth, and twenty of London, an old-world city which retains almost uninjured the walls, towers, and public buildings it possessed when Henry of Richmond inhabited the neighbouring thirteenth-century Castle of Elven, and only finally left it when proclaimed King of England at Reims. Local historians assert that Vannes is, in reality,

The Mother of Venice. and it was not till after Julius Cæsar had defeated their army and destroyed their fleet that the Vannetais (they were Venetians then) submitted to Roman rule. Situated as it is on the northern extremity of the "Little Sea" (for such is the literal translation of Morbihan), Vannes forms an ideal centre for its exploration by land or water. During the summer the fleet of small steamers belonging to the enterprising Compagnie



RICH IN HISTORIC MEMORIES AND ARTISTIC TREASURES: THE CASTLE OF BLOIS.

The Castle of Blois has been the scene of many historic events. In it Anne of Brittany died, and the Duke of Guise was assassinated. A fortnight later Catherine de' Medici died in an adjoining room. The interior is unrivalled for its ornate decoration.

Vannetais are justly proud of their walled city, and of the romantic sea of which a French poet sings—

There is a whole world to explore, for in Morbihan there are as many islands as there are days in the year.

The Literature of the "Little Sea"

obtainable at Vannes (where there are seven

or eight good hotels) is both interesting and abundant. Those who are intent on a careful examination of the historic and prehistoric treasures of this veritable *terra incognita*, having read M. Le Beau's

"Fourteen Excursions in Vannes and its Vicinity" (which ought certainly to be translated), should consult such serious books as Mr. Délandre's "The History of Morbihan and its Monuments," and Dr. G. de Closmadeuc's work on recent discoveries at Carnac. They will help one very materially to enjoy profitably one's sojourn in this land of megalithic remains—of cromlechs, dolmens and menhirs. By all means devote a whole day to Vannes itself, before settling on your excursion for the morrow. The hotel-keeper at Vannes is only too anxious to give information to the stranger within his gates, and everything is done to make his wanderings amongst these fairy-like islands of the "Little Sea" agreeable. The "Ilois" and the "Iloises" of the Breton Archipelago differ markedly from the inhabitants of the mainland. If you happen to be at the Island of Monks or Port-Navalo on a *pardon* or fête-day, you will hear the refrain, "Holy Mother of Mary," sung by the descendants of the sturdy Morbihan sailors who fought under Jean Bart to the signal discomfiture of Reuter. Nothing has apparently changed since 1673, while the gates of Vannes are the same to-day as they were when Charles V. and Louis XI. beheld them from afar, and Charles VII. and Anne of Brittany walked beneath them after the



THE PORTSMOUTH OF FRANCE: A WAR-SHIP IN DOCK AT BREST.

The Naval Arsenal at Brest is to France what Portsmouth and Plymouth are to England. The harbour, divided from the sea by a narrow strait called the Goulet de Brest, is one of the finest in the world, and its fortifications render it practically impregnable from the sea.

Vannetaise de Navigation à Vapeur make two or three excursions every day amongst the picturesque islands and creeks and straits of this enchanted and enchanting land-locked arm of the mighty Atlantic. The



WHERE MATTHEW ARNOLD WROTE "STANZAS FROM CARNAC": A VIEW OF THE TOWN, AND AN INSTANCE OF BRETON PIETY.

Carnac is famous for its megalithic remains, and it was here that Matthew Arnold looked "into the heart of Brittany," and wrote his beautiful stanzas. Carnac stands on the shores of Quiberon Bay, and has a magnificent stretch of sands.

marriage which at last made the Duchy part and parcel of the French dominions. It is such places as Quimper and Vannes which make you realise the true charm and the true characteristics of "Beautiful Brittany."

OUR TEETH.

It has long been scientifically demonstrated that the teeth are destroyed by chemical and bacterial influences. A whole literature exists proving beyond the possibility of doubt that it is impossible to preserve the teeth without keeping the mouth antiseptically clean and in a healthy condition, that is to say, free from microbes and fermentation processes.

But in spite of all this the majority of us confine the care of our teeth to brushing them with tooth-soaps or tooth-pastes, as if the whole art of keeping the teeth in good condition merely depended on superficially cleansing them from impurities, just as dust is removed from china. The teeth are discoloured, injured, and ultimately brought into peril by something far more serious than dust that can be brushed off—by microbes and processes of fermentation. And it is necessary to combat these processes in the only way in which they can be combated—that is, by antiseptics, which must be liquid antiseptics that will wash the whole mouth.

A single moment's reflection should convince everybody that only the external surface of the teeth can be reached with preparations like tooth-soap or tooth-paste, for our teeth are not so obliging as to decay only in places where we can conveniently reach them with the brush. On the contrary, the mischief mostly begins precisely in those localities which are difficult of access, such as the backs of the molars, in the interstices of the teeth, and other cavities. Thus it is self-evident that in order to protect the teeth from injury, and to keep them sound, it is absolutely indispensable to use an antiseptic fluid which will come in contact with all parts of the mouth and teeth, penetrate hollows, pass between the interstices, enter fissures, antiseptically cleanse the backs of the molars, and in short, be effective everywhere about the mouth and teeth.

This result can be secured with absolute certainty as has been repeatedly demonstrated by eminent men of science, by the well-known liquid dentifrice, Odol.

Odol is the first and only preparation for cleansing the mouth and teeth which exercises its antiseptic and refreshing

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Owing to this characteristic, peculiar only to Odol, the whole oral cavity, to its minutest recesses, is completely freed from and protected against all fermenting processes and injurious bacteria.

It follows that everyone who daily and regularly cleanses the mouth and teeth with Odol will practise the most perfect hygiene of the mouth and teeth in accordance with recent scientific principles.





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unfailing regard for purity. Always ask for H & P's Oval Digestive

THE PLAYHOUSES.

MR. BERNARD SHAW'S BANNED SKETCH.
"PRESS CUTTINGS."

YOU may take it, if you like, as just a squib—as just a piece of merry fooling, a topical farce done in the highest spirits, a sort of "Dagonet" sketch writ large, but working a far more original vein of humour. Or you may discover in "Press Cuttings," as Mr. Bernard Shaw styles this censored skit of his, a strong plea for the Suffragists' cause—a gay satire at the expense of the movement which advocates universal military service. You will not be far wrong in either case, for there is thought—and very pronounced opinions—behind all the fun; while such views as here obtain expression are presented in a way that is the very reverse of solemn. And no matter from which standpoint you prefer to regard it—whether as joke or as propaganda, you will be bound, while it is being played, to hold your sides with laughter, for in no recent stage work of his has Mr. Shaw indulged himself so freely in sheer, rollicking buffoonery. He has got two live types into this sketch, a Cockney co-script, who loathes the formalism of soldiering with its sentry-go and its drill and its inhuman

mechanism, and wants his superior officers to talk to him as man to man; and again an Irish charwoman who, as a widow with eight children, speaks of a certain side of married life with disconcerting frankness. But his other characters, his Prime Minister, Balsquith, and his War Office autocrat, Mitchener, who in an England under conscription barricade themselves in terror against an army

atmosphere or the wildest farce. All Mr. Shaw's favourite devices will be found in this piece. Once more he credits men with the feminine weakness—hysteria, timidity, helplessness. Once more women are assigned the supposed masculine virtues of resolution, courage, and business sense, and are seen taking the initiative in love. It is a topsy-turvy fantasy, a rare-bit of stage-journalism, that has its point for the moment and will be quickly forgotten; but, spiritedly acted as it is by Mr. Loraine as the spluttering General, Miss Agnes Thomas as the charwoman, and Mr. Leon Quartermaine as the Premier, it makes a droll afternoon's entertainment, and the best joke of all is the society which, to dodge to Censor, Mr. Shaw has had specially founded for its semi-public performance.



ON A NEW ORIENT LINER: THE SMOKING-ROOM OF THE NEW AUSTRALIAN MAIL-BOAT, S.S. "OTRANTO."

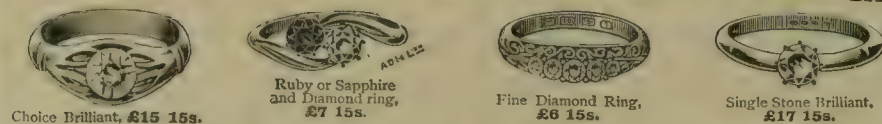
The S.S. "Otranto" is one of the five large new vessels which the Orient Steam Navigation Company is placing on the Australian mail service. She was built by Messrs. Workman, Clark and Co., of Belfast. The smoking-room here shown is typical of the luxurious accommodation on these boats. It is nearly twenty feet in height, and a unique effect is obtained by the large wagon roof with dormer windows. The decorations, by Waring's, include walls of panelled oak, relieved by exquisite carvings.

of Suffragists, or his two "Anti-Suffraget" leaders, who, by their very arguments against women's claims, drive the fire-eating general into embracing the "votes for women" movement and demanding civil rights for soldiers—are the merest caricatures and move in an

beautiful districts served by this line, including Touraine, Anjou, Périgord, Poitou, Guyenne, Gascony, the Loire Valley, Auvergne and the spurs of the Pyrenees, and it is illustrated by a large number of excellent photographs.

Holiday-makers who are thinking of going to France would do well, before deciding what part they will visit, to obtain a copy of the attractive booklet issued by the Paris-Orleans Railway Company. It describes pleasantly the many

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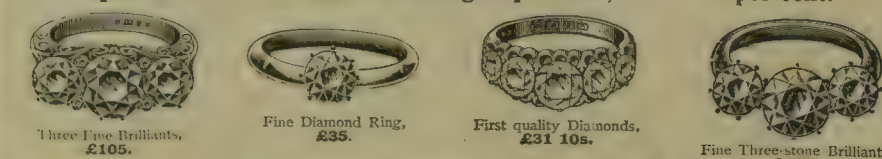
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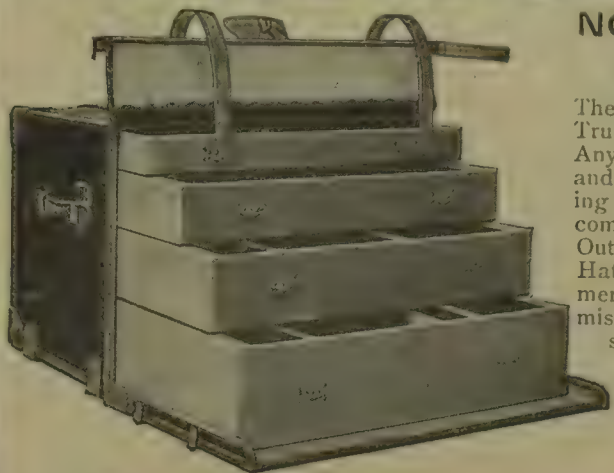
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LADIES' PAGE.

I, FOR my part, dislike to see abnormally tiny creatures, even for lap-dogs, always delicate and unnatural in constitution as they are. The Pekingese Palace dog so far has not been bred to such abnormally puny dimensions, and the recent show of these doggies, organised by their own special Club, of which Lady Algernon Gordon-Lennox is the President, was charming to visit and in all ways a great success. Their aristocratic hauteur, their delicious air of superiority, combined with their natural smallness and the beauty of their long coats and gracefully carried tails, make them ideal "ladies' dogs." A true Pekingese was exceedingly scarce until quite recently in this country; indeed, very few of the breed existed anywhere, as they were exclusively "Palace dogs," even in China, and until about the middle of the last century, had never been seen by European eyes. Then a few specimens were captured and brought over as spoils of war, and at present it is quite the most fashionable lady's dog, though the Kennel Club did not recognise its existence till 1896.

The Pekingese Palace dog has had the honour of having its "points" declared by no less a person than that wonderful woman the late Dowager Empress. She required the face to be entirely black, with the eyes "large and luminous," and drooping ears, standing well out against the head nevertheless—"like the sails of a war junk." As to the colour of the coat, her Majesty declared that to be immaterial; she desired to have a dog of every possible shade, to be carried in the sleeve of her robe in harmony with its colouring. "As for the colour, let it be that of the lion, a golden fawn, to carry with a yellow robe; or the colour of a red bear, or black and white, or striped like a dragon, or otherwise, so that there shall be a dog appropriate to carry with each one of our imperial robes!" The shape of the body was to resemble that of a hunting lion, and the fore-legs to be short in order to curb a desire to wander; small size was demanded for the owner's comfort in carrying her pet in the hanging sleeve of her robe. Then the moral qualities came into the Imperial purview. They must always "comport themselves with dignity," and must be taught "instantly to bite a foreign devil." Every true-bred Pekingese certainly fulfils the former injunction, and a friend of mine who has bred some of these dogs tells me that she experienced their hereditary tendency to meet the latter demand; her dogs were so apt to turn suddenly and rend the hand that fed them that she gave up the breed. However, some of the most ardent exhibitors the other day told me that they had not found this tendency—one lady added to her negative reply that her dogs were "such vain little dears, they will do anything if I praise them enough." Quite ladies' dogs, evidently!

The terrible weather is spoiling the river season, and Henley sent scores of pretty gowns home in absolutely tragically ruined condition. However, the materials were



A STUDY IN DRAPERIES.

Evening gown of black chiffon over white silk, with jet panel and fringes. The new fashion of drapery is shown on skirt and corsage.

never more suited for river and country wear than they are this season. Linen batiste, cotton voile, mercerised cotton, braid lace, plain or fancy muslins, broderie Anglaise, zephyr, and both pure and union linen, are all so inexpensive as to be suited to river wear. To be in a rowing-boat or a punt is a situation always so liable to result in damage to the gown that anything costly seems quite out of place. Cotton voile is a particularly good choice, for it possesses all the charm of transparency and delightful design and colouring, and yet is only a few pence the yard. Of course, it needs a well-chosen lining, but this can be of mercerised sateen or batiste just as well as of silk.

A charming river frock prepared for Henley was of soft blue cotton voile, with a band down the front from bust to hem, of a cotton lace dyed in exactly the same colour, and worked upon in a little sprig with a brighter-toned blue filoselle—just a little bit of embroidering that a girl could do for herself in a few leisure moments. The same lace made a rather full top to the sleeves, the cuff portion being of the voile laid in tucks, as also was a small vest above the front band of lace. Folds of the voile passed over the shoulder and fastened down into the belt (which outlined the true waist-line, according to present fashion) on each side of the flat front piece. The back of the frock exactly corresponded with the front in design. A delicate blue also appeared in linen batiste, a black satin square-cut collar over the shoulders, and a belt to match, giving a good contrast. Unfortunately for the wearer, she had not been content, as wisdom dictates, with the touch of black satin on the top of her gown, but had the skirt trimmed round with "book-clasp" motifs of it, and these "ran" disastrously in the rain.

Whatever is bought at Liberty's is sure to be of excellent taste, and sure also to be of excellent quality. These are great recommendations at all times, and lend special interest to the sale, where many of the regular lines of goods are greatly reduced in price. The sale begins at all the Regent Street shops of the famous firm on July 19, and many classes of "Liberty" specialities, including dress materials, and made-up costumes, carpets, curtains, Eastern goods, and many pieces of furniture are offered at much reduced prices. For example, some ladies' day gowns that were six and a half guineas are now to be had for three and a half; white embroidered silk blouse lengths that were twenty-five shillings are exactly half the price; and girls' frocks that were three guineas are now thirty-five shillings. A sale catalogue can be had by post, but in remnants and small fancy goods a personal visit will disclose hundreds of bargains that a catalogue cannot indicate.

An enterprising idea is that of the proprietors of Chiswick Polish, who offer a free holiday in Paris, or in the United Kingdom, to the twenty ladies who send in most coupons before the twenty-first of this month. Full particulars are given in the advertisements. FILOMENA.

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WILLS AND BEQUESTS.

THE will (dated March 26, 1907) of MR. ELLIS ABRAHAM FRANKLIN, of 35, Porchester Terrace, who died on May 11, has been proved by his sons Arthur Ellis Franklin and Ernest Louis Franklin, his brother-in-law Lord Swaythling, and George Solomon Joseph, the value of the property amounting to £508,959. Mr. Franklin gives £1000 each to the Jews' College and the Anglo-Jewish Association, £20,000 for charitable institutions as he may by memorandum direct; £500 to Lord Swaythling; £1000 to his niece Sarah Franklin; £500 to his sister-in-law Theresa Franklin; an annuity of £150 to the widow of his brother Henry; and legacies to clerks, servants, and others. His share in the profits of the business of Samuel Montagu and Co., Old Broad Street, he gives as to nine-tenths to his son Frederick Samuel and one-tenth to his son Ernest Louis. The residue is to be divided into twenty parts, four of which he gives to each of his sons Arthur Ellis and Frederick Samuel, three each to his sons Ernest Louis and Leonard Benjamin, and two each to his three daughters Edith Castello, Henrietta Joseph, and Beatrice Samuel.

The will (dated Dec. 3, 1908) of the HON. ROSE ARTHUR LUBBOCK, son of Lord Avebury, of 11, Sloane Gardens, Chelsea, and Rowles House, near Newbury, has been proved by the widow, the Hon. Ethel Turner Lubbock, the value of the property being £31,132. The testator gives £500 to the Victoria Hospital for Children; £100 to his chauffeur; legacies to clerks and servants; and the residue to his wife.

The following important wills have now been proved—
Mr. David Evans, Llangenneck Park, Carmarthen . . . £187,306
Mr. John Fattorini, of Bradford . . . £70,073
Miss Mary Anne Wheeler, Cleveland Road, Ealing . . . £66,791

Cheap circular tours to the most interesting places in Brittany and Normandy are announced by the London and South-Western Railway from London (Waterloo,

etc.), via Southampton; also additional sailings between Southampton and the French coast for these parts. Fortnightly excursion tickets are issued on certain days every week from Waterloo to St. Malo, Havre, Cherbourg, Trouville, Caen, Etretat, Rouen, etc. Illustrated guides, entitled "Quiet Holidays in Normandy and Brittany" and "Beautiful Brittany's Wonderland," may be obtained free on application to Mr. Henry Holmes, Superintendent of the Line, Waterloo Station, S.E.

By the provision of a fountain and colonnade for drinking the hot mineral waters in the open air, the

PARLIAMENT.

ALWAYS the Finance Bill! It has again had its three days this week in the House of Commons, and its supporters say: "Wait till it can be taken every day Saturdays, perhaps, included—and then we will make progress." As it is, the long late sittings are placing a severe strain on members on both sides. They look pallid; tired, and sleepy. The heavy reduction of Mr. Herbert Samuel's majority in Cleveland, however, gave new spirit to the Unionists, and they settled down in the most dogged manner to an exposure of the difficulties, anomalies, and puzzles connected with the ascertainment of site-value and increment-value. Captain Pretymann's intimate knowledge of the whole subject has continued to prove of great service to the Opposition, and the occupants of the Front Opposition Bench are ably and steadily supported by a group of competent critics behind them. The Government defence is maintained chiefly by Mr. Lloyd-George, who makes a concession almost every day on a minor point, and by the Attorney-General, who provokes more controversy than the Chancellor of the Exchequer. During these debates the attendance of members of both parties is wonderfully good, but the reaction is seen in the latter part of the week, and last Friday the Government Whips were alarmed about their majority on the Irish Land Bill. It was only in the last hour of the sitting that a sufficient number of their men were brought down to the House, and even then their majority against Mr. Redmond's amendment (actually

thirty-five) would have been only five if all the Labour Members present had gone with the Irish. Meantime, the Lords have, according to the Duke of Norfolk, been trying to educate public opinion on national service by a two-nights' debate on Lord Roberts's Bill. The Field-Marshal, in advocating universal training, said nothing short of a million of men would suffice for our needs. Although the Bill was powerfully supported, the Unionist leaders felt it their duty to give a fair trial to the system introduced by Mr. Haldane.



Photo, Crabb, Southsea.

TRAINING THE GUNNER: MINIATURE WARSHIPS, ON THE ENDS OF ARMS, THAT ARE RUN ALONG RAILS AND ACT AS MOVING TARGETS.

This illustration shows one of the many ingenious devices by which gunners are taught their work at Whale Island. As we have noted, the whole apparatus forms a moving target.

Corporation of Bath have taken a strong step in the effort to inaugurate a summer season. Sir Malcolm Morris, K.C.V.O., F.R.C.S., in starting the fountain, referred to the revival in Bath during recent years and the extraordinary improvements made for the benefit of visitors. Why Bath had always been considered as a winter resort only, he never could understand. When people came to Bath in summer as well as winter, the provision of facilities for drinking the waters *al fresco* would be a great boon.

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When it is necessary and
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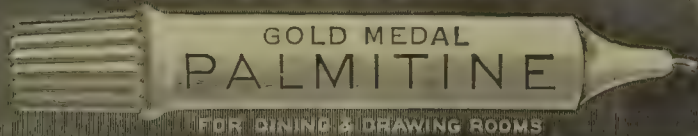
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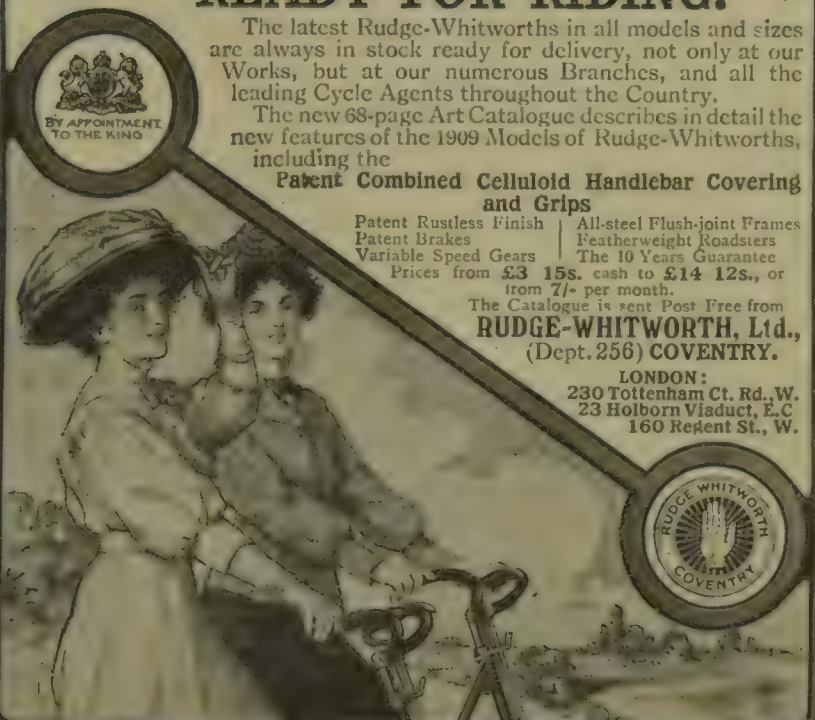
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CHESS.

G W Moir (East Sheen).—We accept your withdrawal with pleasure.
 ALAN C WHITE, J PALUZIC, E A MITCHELL.—Received with thanks.
 H R Kinson (Liverpool).—Our regrets go with your thanks for problem.
 R C Widdicombe.—Yes; such moves on the part of Black allow short mates.

CORRECT SOLUTIONS OF PROBLEM No. 3393 received from C A M (Penang) and J Young (Natal); of No. 3394 from Arun Singha (Calcutta) and Young; of No. 3395 from Charles Willing (Philadelphia), C Field (Athol, Mass., U.S.A.), R H Couper (Malbane, U.S.A.), Henry A (Denver), and C Barretto (Madrid); of No. 3397 from J B Camara (Madeira) and C Barretto; of No. 3398 from Eugene Henry, Mrs. Kelly (Liverpool), T Roberts (Hackney), F W Shaw (Northampton), Hereward, Ernst Mauer (Berlin), H S Brandreth (Lucerne), L Schlu (Vienna), C Brandt (Vienna), London McAdam (Southsea), F Wills (Exeter), and J Green.

CORRECT SOLUTIONS OF PROBLEM No. 3399 received from E Schlu, Joseph Willeck (Shrewsbury), Eugene Henry, G Stillingfleet Johnson (Cobham), Albert Wolff (Putney), J D Tucker (Ilkley), J F G Pietersen (Kingswinford), R M Theobald, R Worters (Canterbury), Theodore Roberts (Blackpool), T Turner (Brixton), Major Buckley, J Isaacson (Liverpool), J K D (Scone), J A S Hanbury (Birmingham), A G Headell (Winchelsea), H S Brandreth, J Coad (Vauxhall), M Folwell, F Wills, G W Moir (East Sheen), Hereward, E J Winter-Wood, R C Widdicombe, T R (London), J McOscar and F R (Paris).

CHESS IN AMERICA.

Game played in the match between the Manhattan and Franklin Chess Clubs.

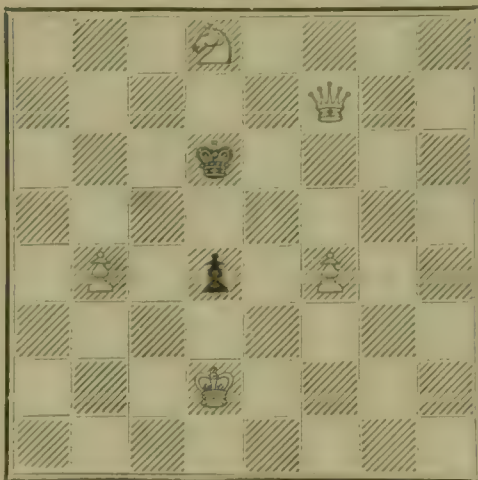
(Philidor's Defence.)

WHITE. Mr. M. Cohn.	BLACK. Mr. Cohn.
1. P to K 4th	P to K 4th
2. Kt to K B 3rd	P to Q 3rd
3. P to Q 4th	P takes P
4. Q takes P	Kt to Q B 3rd
5. B to Q Kt 5th	B to Q 2nd
6. B takes Kt	B takes B
7. Kt to B 3rd	Kt to K 2nd
8. B to K 5th	P to B 3rd
9. B to K 3rd	Kt to Kt 3rd
10. Q to Q 2nd	Q to Q 2nd
11. Kt to Q 4th	Kt to K 4th
12. Q to K 2nd	B to K 2nd
13. P to B 3rd	P to Q 3rd
14. P to B 3rd	Kt to B 2nd
15. Kt to B 4th	Castles Q R
16. Q R to Kt sq	B takes Kt
17. Kt to Q 5th	

SOLUTION OF PROBLEM No. 3398.—By T. KING-PARKS.

WHITE.
 1. Q to B 7th
 2. R takes P (ch)
 3. Q mates
 If Black play 1. P to Kt 4th, 2. R to R 6th, and if 1. Any other, then 2. R to Q 5th, etc.

PROBLEM No. 3391.—By C. H. MORANO.
 BLACK.



WHITE.
 White to play, and mate in three moves.

That ardent motorist, Bibendum, on the title-page of his new Michelin Instruction Book, just published, gives some sage advice in poetical form, as follows:—

"He who to be an expert motorist aspires,
 Must first learn all there is to know about his tyres."

Besides giving full instructions for the fitting and detaching of Michelin Tyres, the little book contains many valuable hints on repairs, an inflation table, directions how to weigh a car, and other useful tips. The names and addresses of firms that stock Michelin tyres are also included. Copies of the brochure will be sent post free to motorists on application to the Michelin Tyre Company.

ECCLESIASTICAL NOTES.

SEVERAL of the Bishops are taking their holidays early this year. The Bishop of Carlisle is going abroad, and will not return till the end of August. The Bishop of Chichester leaves home this week, and will be in Canada till late in September. Dr. Chavasse, Bishop of Liverpool, is to spend August in the Isle of Man.

The Archbishop of York has been visiting Leeds, where he was a curate twenty years ago. His Grace addressed a crowded meeting of men in the Victoria Hall, and he also spoke in the open air. He welcomed the many Nonconformists who had come to hear him, and expressed an earnest desire for the reunion of the churches.

At the Swansea Church Congress, much attention is to be given to Socialism. The Bishop of Truro, the Archdeacon of Ely, Dr. Arthur Shadwell, and the Rev. John Wakeford are to take part in a discussion on "Socialism from the Standpoint of Christianity." The arrangements for the various Congress meetings are now almost completed. The Archbishop of Canterbury and the Bishops of Carlisle and Southwark are to be among the preachers.

Bishop Sumner, who has completed his eighty-fifth year, continues in satisfactory health, and is able to take part to some extent in public gatherings. Dr. Sumner, who resigned his title as Bishop of Guildford some months ago, is the youngest son of the late Bishop Sumner, the last of the "Prince Bishops" of Winchester.

The Rev. J. Stuart Holden has given an emphatic denial to the statement recently cabled from America that he intends to accept a "call" to a Presbyterian Church in New York. Mr. Holden's influence has been steadily increasing since he came to St. Paul's, Portman Square, as successor to Principal Griffith Thomas. The congregation is prospering well under his able leadership.

Cigarette-smokers who favour the Virginian variety will be glad to know of a new brand which has been placed upon the market, and which has both quality and cheapness to recommend it. The new "Scout" Cigarettes, which are of medium strength, can be obtained of any tobacconist. They are sold in cartons of 10 for 2½d., 20 for 5d., or in boxes of 50 for 1s., and 100 for 2s.



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"SWAN" FOUNTAIN PEN

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 SHAVING STICK



VINOLIA lathers readily—abundantly.

That is a consideration when you
 have to shave in a hurry—it saves both
 YOUR time and the razor's edge.

But Vinolia is more than a mere
 time-saver. It is an effectual safe-
 guard against irritation, it is at once
 refreshing and exhilarating to
 the skin. There is nothing so
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 the Vinolia Shaving Stick.



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Still a splendid chance for you to be among the first 20!

Miss N. R. Corbyn accompanies the party, which will be conveyed about Paris in carriages, in private fashion, quite free from any suggestion of advertisement. Successful competitors who prefer their holiday in England, Scotland, or Ireland, may do so, and have expenses paid by arrangement.

Present State of the Poll:

1. Mrs. Smith, Belfast	5. d.
2. Mrs. Selley, Plymouth	4 13 0
3. Mrs. T. Brown, Rhondda	3 16 0
4. Mrs. Brown, Highbury	3 15 0
5. Mrs. Hale, St. M.	3 11 0
6. Mrs. Day, Euston	3 10 0
7. Mrs. Rees, Merthyr	3 10 8
8. Miss Malcolm, Grange	2 9 0
9. Miss Icke, Leicester	2 7 11
10. Miss Hague, Blackpool	2 1 4
11. Miss Bassett, Pinner	1 5 4
12. Mrs. George, Lewisham	1 5 0
13. Miss Dickinson, Shrewsbury	1 4 0
14. Miss Savage, Salisbury	1 4 0
15. Miss Kennedy, Belfast	1 3 0
16. Miss Beale, Tamworth	1 2 3
17. Mrs. Booth, Drumcondra	1 1 4
18. Miss Catworthy, Rednal	0 14 9
19. Mrs. Dickinson, N. Shields	0 11 0
20. Miss Lord, Bedford	0 10 6
21. Miss Price, Blaenavon	0 10 6

It will be seen that anyone beating 10s. 6d. will now be among the first twenty!

CONDITIONS OF COMPETITION.

The 20 YOUNG LADIES to be awarded the Free Holiday in Paris or elsewhere, will be those who send us the greatest value in grocers', bootmakers', or other dealers' receipts, between now and July 21 for our specialties named below. The receipts must be for purchases at retail prices, and may be for any amount from 2d. upwards. Dozens of your friends are buying Cherry Blossom Boot Polish; ask them when doing so to give you their receipts, which you then send to us as your own. List of the 20 Holiday Week Prize-Winners will be published on July 21. Competitors must agree to abide by our decision in all matters.

Illustrated particulars of the Paris Holiday will be forwarded post free on receipt of a postcard.

CHERRY BLOSSOM BOOT POLISH

is the great easy Polish—preserves leather of all boots, and makes it waterproof. 2d., 4d., 6d. tins. Outfits, 6d. and 1/3.

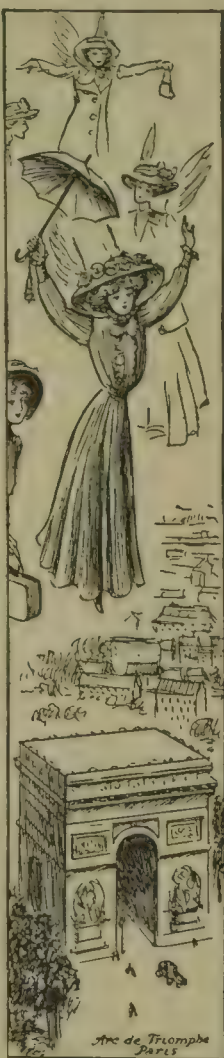
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for all bright metals, 2d., 4d., 6d. tins.

CARPETINE (Chiswick Carpet Soap).

cleans all carpets and restores original colours. 6d. and 1/- tins.

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Absolutely the best PASTE

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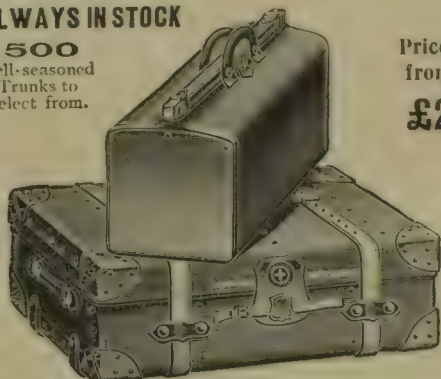
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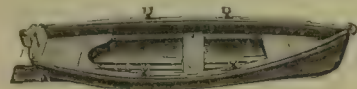
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Tea and Luncheon Baskets

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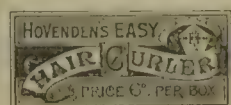


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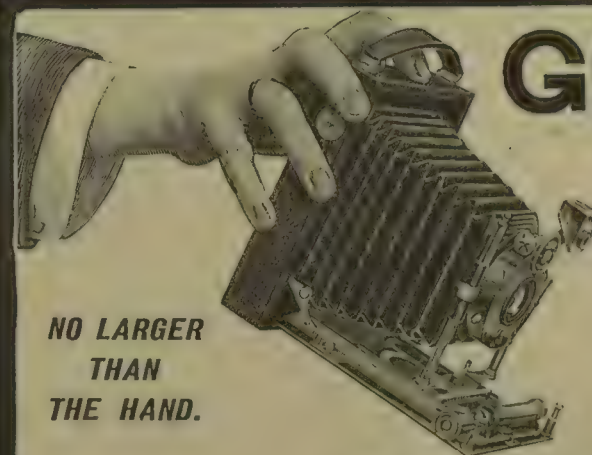
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THE CHRONICLE OF THE CAR.

IN the early days of motor-car engines it was not thought possible to handle an internal-combustion engine satisfactorily unless fitted with a governor, the effect of which was to cause the engine to run in a burst of paroxysms. Now governors are conspicuous by their absence except in one remarkable instance—that of the well-known and greatly appreciated Albion cars, by the Albion Motor Car Company, Ltd., of Paisley. In this car a governor is retained, but then such a governor! It is the Murray, invented by Mr. Blackwood Murray, one of the members of the firm, and has for its functions the automatic and synchronous control of the magnetic ignition, the throttle-opening, and the character of the explosive mixture. After the governor has been set the driver cannot race his engine—the governor won't let him; and it is to this great characteristic, coupled with the functions of the Murray mechanical lubricator, that the great name gained by the Albion commercial vehicles is largely due.

There is so much cross-testimony with regard to the running cost of cars that extracts from accounts which have been carefully kept are quite worth repetition as a guide to professional men and others who contemplate changing over from horse-drawn to mechanical propulsion. Writing to the Wolseley-Siddeley Company for a new set of piston-rings, the first engine replacement in 12,000 miles' running of a 10-12-h.p. Wolseley-Siddeley car, a medical man gives his expenses for twelve months: Petrol, twenty-four miles to the gallon, cost £14 13s.; oil, £1 9s.; grease, 15s.; accumulator-charging, 9s.; some odd and insignificant replacements, £3 2s.; altogether, £20 8s. Then the item of tyres amounted to £30 1s., made up as follows: Three 760 x 90 Michelin covers, £11 2s. 6d.; one 760 x 90 grooved Dunlop, £4 19s. 6d.; one retreaded

760 x 90 Michelin, £2 2s.; two Michelin inner tubes, £2 14s.; one Durandal non-skid, £3 7s. 6d.; three retreaded Durandals, £5 5s.; small repairs, 10s. 6d. The totals make £50 9s., or a sum equivalent to 17d. per mile. The heavy tyre expenditure is due to the shocking condition of the North Staffordshire roads.

By the emphatic words of Mr. Joynson-Hicks, M.P., the Motor Union is earnest that the motor world

in the hands of those associations who are opposed to the Club and all its works.

It is remarkable that the great success and favour of the Stepney spare motor wheel has not provoked rival devices of the kind from the fecund brains of our many inventors. Of course we have the Rudge-Whitworth detachable wheel, but that does not enter the same gallery, besides being much more expensive. At first sight, of course, the detachable, or should I not say attachable, wheel à la Stepney strikes one as a somewhat unmechanical and clumsy contrivance, but it serves, and serves well. In its latest form it can be attached in three or four minutes, and thereafter the car runs and steers as well as before. It has therefore become very popular, and few cars are seen without it to-day.

Now it would appear it is to endure a rival, though the practicability and popularity of the fresh notion have yet to be proved at the hands of the motoring public, which is, after all, the salient test. The newcomer is Hall's Combination Improved Spare Wheel and Non-Skid, which must at once suffer some curtailment of its descriptive title if it is to succeed. It is simplicity itself, and can be attached in a remarkably short space of time. It consists of a spare rim with an inflated tyre mounted thereon, such rim having four angular brackets riveted at regular intervals to its under side and formed with a vertical cheek and overturned lip to butt up against the wood felloe and

grip the tyre-rim of the car wheel. Four rim-clips gripping the car wheel rim, and bolted to the spare-wheel brackets by a Terry spring-locked lock nut, serve to attach the spare wheel in the readiest and firmest manner. The Hall spare wheel was originally conceived as a non-skid; its use as a spare wheel when punctures ensue is a later development. Owing to its simplicity and the few parts, it should be put upon the market at a very reasonable price.



A "DREADNOUGHT" THAT WAS DRIVEN BY PETROL: MOTOR-CARS DISGUISED AS THE GREAT WAR-SHIP. This "Dreadnought," which figured prominently during the Empire Day celebrations at Kuala Lumpur, Malay Peninsula, was one-sixteenth the size of the battle-ship, was "engined" by motor-cars, and went gaily round and round the Padang, firing her guns. Amongst the crew were five monkeys dressed as sailors. Mr. Fred Vavasour Guy was responsible for it.

shall know that the Motor Union had no sort of hand in advising the Chancellor of the Exchequer as to the taxation proposed by the Finance Bill. The terms of the Budget as they affect automobilism came as a great surprise to the Royal Automobile Club generally and to many members of the Club Committee particularly. By his declaration that he consulted the Club, however, the Chancellor has placed a many-thonged whip

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G. 84.—38-h.p. Minerva	722
G. 86.—40-h.p. Piccard-Pictet	697.8
G. 87.—40-h.p. Gladiator	501.2

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· BEING · AN · ACCOUNT · OF · BIRMINGHAM · & · ITS · GREAT · INDUSTRIES ·



1. THE KING AND QUEEN IN BIRMINGHAM IN 1874:
WATCHING THE SLITTING OF PENS.

"THE VISITOR": THE KING IN BIRMINGHAM.

2. THE KING AND QUEEN IN BIRMINGHAM IN 1871:
THE QUEEN GILDING A VASE, AT MESSRS. ELKINGTON'S.

The King and Queen honoured Birmingham by their presence on Wednesday of last week (July 7), and his Majesty opened the new Buildings of Birmingham University, "the Visitor" of which he is, under the charter granted by Queen Victoria. In the course of his speech, the King said: "To you, gentlemen of the staff, I have to say that I highly appreciate your earnest labours on behalf of the University, and I notice with pleasure that you hold yourselves ready to extend your curriculum as experience may suggest. To you, students, I say the honour and dignity of this University are largely in your hands; and I look to you to initiate and hand down these worthy traditions to your successors." In the carriage with the King and Queen are Princess Victoria, and Mr. Haldane, the Minister in Attendance.—[PHOTOGRAPH BY GRAHAME, ELLERBY.]



BIRMINGHAM is above and beyond everything else the emporium in England of the mechanical arts. Its history is confined practically to the last hundred years. Those things that have made its name the password of commerce are the vast scale of its manufactures and their unprecedented variety; its huge establishments for iron and brass-founding, and for the rolling, stamping, plating, and drawing of metals; the artistic merit of its jewellery and metal-work; its manufacture of railway-wagons and carriages, of guns and rifles, of steel toys, tools, and machines; of engines and dynamos, of keys, screws, bolts, locks, files, nails, rivets, awl-blades, axletrees, bridle-bits, chains, handcuffs, bayonets, and swords; its great army, on the artistic side, of painters, sculptors, engravers, carvers, chasers, die-sinkers, millers, japanners, glass-cutters, goldsmiths, and lithographers; its brilliant general staff of the captains and field-marshal of industry.

As to the multiplicity of its trades, this is reflected, among other things, by the large number of "little masters," persons employing a small number of men, youths, and girls, which is one of the chief social peculiarities of Birmingham. In the commercial history of Birmingham is, in truth, embodied the history of Midland manufactures. Not only did the manufacture of steel pens, buttons, guns, and metallic bedsteads, and cycles, electro-plate, and gas-fittings, as well as the brass trade generally, here originate and flourish, but even the cotton trade was for some years carried on within the city's borders. The invention of spinning by rollers, the foundation of Arkwright's fortune, was successfully accomplished in Birmingham by John Wyatt and Lewis Paul in the eighteenth century in the Upper Priory, where the Friends' School now stands.

As the breeding-ground of great men Birmingham has still higher titles to fame. Her political fidelity to Mr.

THE CHAMBERLAIN MONUMENT AT BIRMINGHAM.



Photo, Topical.

"A SPLENDID MEMORIAL OF THE GENEROSITY AND PUBLIC SPIRIT OF THE LEADING CITIZENS OF BIRMINGHAM": THE ENTRANCE OF THE NEW BIRMINGHAM UNIVERSITY BUILDINGS.

of the manor, except for a short lapse, remained in the hands of the De Berminghams until 1500, when John Dudley acquired the estates by a cunning plot, Dudley later losing his head on the scaffold. In 1538, John Leland passed through Birmingham, and in his famous "Itinerary of Britain" records his impression of the place as follows: "I came through a pretty street as I ever entered. . . . In it dwell smiths and cutlers."

In 1643 Birmingham, still undeveloped, was attacked by Prince Rupert, a portion of the town being burnt, and many inhabitants put to the sword. The Prince himself was attacked in turn at a distance of about three miles from the town by Lord Willoughby, the chronicler this time recording the defeat of Rupert. From about this time Birmingham seems to have risen steadily as a manufacturing centre, "whose wares rendered her famous throughout the kingdom."

About 1685 Birmingham first began to manufacture buttons, and in the eighteenth century the sword and gun trades rapidly developed. Birmingham is the seat of an assay office for gold and silver wares and of a gun-proof office through which about 400,000 gun-barrels pass every year. Matthew Boulton and James Watt endowed the town with another great industry by their improvements in the manufacture of steam-engines. In 1769 the first Birmingham canal was opened for traffic, through the South Staffordshire coalfield to Wolverhampton, and this had much to do with the development of trade.

In 1777 William Murdoch applied to Boulton and Watt at Birmingham for employment. Mr. Boulton's attention was drawn to the hat which Murdoch held in his hand, and he asked of what it was made. "Timmer," replied Murdoch modestly. "Do you mean to say that it is made of wood?" asked Boulton. "Yes, Sir, I turned it myself, Sir, in a bit lathey of my own making." Boulton was struck with the young fellow's ingenuity,



Photo, Whistler.

THE NEW BIRMINGHAM UNIVERSITY BUILDINGS: THE GREAT HALL.

The opening ceremony took place in the Great Hall, in the presence of some two thousand ladies and gentlemen. The stands in the University held about ten thousand guests. A guard of honour of the Birmingham Contingent of the Officers' Training Corps was mounted at the University.

Chamberlain touched the hearts even of his opponents. As the chosen home of Cardinal Newman for forty years she became a living centre of literary and theological interest. Joseph Priestley, experimental chemist, religious teacher, and civil reformer, spent eleven of his ripest years in Birmingham. Mr. Bright represented her continuously in the House of Commons for the last thirty-two years of his life. Bishop Westcott was born and bred in Birmingham. Sir Edward Burne-Jones, R. W. Dale, and Boulton, Sturge, Cox, Vince, Bunce, Shorthouse, Lightfoot, and Benson, are among the names of other famous men born in Birmingham or drawn towards it.

Despite her age, Birmingham is essentially new, and carries the signs of her modernity thick upon her. The oldest buildings in the city go no farther back than the beginning of last century, and many of the streets have been wholly rebuilt at a much more recent period. Yet Birmingham has a history and a lineage; and had a corporate governing body, a priory, a richly endowed parish church, two guilds, and free chapels in mediæval times. Of all these hardly a vestige remains to-day. In the days of Edward the Confessor, Birmingham, then a

small village, is stated to have been the property of one Ulwine; but after the Norman invasion the manor came into the possession of Fitz-Auscult, and was rated at four hides, valued at twenty shillings. During the lifetime of Peter de Bermingham, in the latter half of the twelfth century, a weekly market was established on Thursdays, and thus the place developed from a mere village or hamlet to the importance of a market town. The ownership



Photo, Topical.

THE NEW BIRMINGHAM UNIVERSITY BUILDINGS: THE ENTRANCE HALL.

The new buildings, rightly described by the King as magnificent, "a splendid memorial of the generosity and public spirit of the leading citizens of Birmingham," were begun seven years ago. Six of the nine great blocks are finished.



Photo, Gramercy.

MRS. JOSEPH CHAMBERLAIN AS LADY MAYORESS OF BIRMINGHAM FOR THE DAY OF THE ROYAL VISIT; MRS. CHAMBERLAIN, THE LORD MAYOR OF BIRMINGHAM, SIR GEORGE H. KENRICK, THE RECORDER, AND THE TOWN CLERK, IN THE PROCESSION.

Mrs. Joseph Chamberlain was asked to act as Lady Mayoress for the day of the royal visit, a graceful recognition of the great part the Chamberlain family has played in Birmingham. Mr. Chamberlain himself is Chancellor of the University, a fact to which the King referred when he said: "No one can regret more than I do that your distinguished fellow-citizen, the Chancellor, is not with us to-day to witness the completion of a scheme which has always been so dear to his heart."

and gave him a job. Murdoch prospered and was dispatched to Cornwall to superintend the engines employed in draining mines, and while so occupied turned his attention to the subject of the locomotive-engine. He finally succeeded in bringing the idea to a certain degree of perfection, but his modesty seems to have been in the way of his pushing forward the idea, and it was left to George Stephenson to perfect this type of engine. To Murdoch, however, we owe the invention of lighting by gas, and, later, Boulton's house in Birmingham was lighted in this way, attracting large crowds to see the wonder. Birmingham became a Parliamentary borough by virtue of the Reform Act of 1832, and received the Royal Charter, which formed the foundation of its municipal government, in 1838. In 1889, Queen Victoria granted a charter whereby the borough was raised to the dignity of a city. In 1891 its boundaries were greatly extended by Act of Parliament; while in 1896 Royal Letters Patent conferred upon the Chief Magistrate the title of Lord Mayor. In 1838 the population of Birmingham was 170,000. To-day it is between 700,000 and 800,000. The annual value of land and buildings is calculated for rating purposes at nearly three millions sterling.

AT COUNCIL CHAMBER AND IN UNIVERSITY: THE KING IN BIRMINGHAM.



ABOUT TO RECEIVE THE BIRMINGHAM CORPORATION'S WELCOME: THE KING AND QUEEN ARRIVING AT THE COUNCIL HOUSE.

The Corporation's address of welcome was read in the Council Chamber, and his Majesty duly replied, saying, amongst other things: "Fortunate is the city which can obtain for its government the spontaneous services of so many able and conscientious citizens. Birmingham is the home of the best traditions of municipal life; and I am well assured that these traditions will be upheld in future as they have been in the past." At the conclusion of his speech, his Majesty knighted the Lord Mayor, who arose Sir George Hamilton Kenrick.



THE ROYAL OPENING OF THE NEW UNIVERSITY BUILDINGS: THE KING AND QUEEN IN THE GREAT HALL.

The Chancellor of the University, Mr. Joseph Chamberlain, being absent, the King and Queen were received by the Pro-Chancellor, Mr. C. G. Beale. The Bishop of Birmingham offered up prayer, and then Sir Oliver Lodge, the Principal, read the University's address. To this his Majesty replied. Then came a number of presentations, the handing of a gold key to the King, and the actual opening of the buildings. In the drawing are (in the centre) Princess Victoria, the Queen, the King, and Mr. Haldane. Sir Oliver Lodge is shown reading the address. On the left are the Bishop of Birmingham and Mrs. Chamberlain.

THE EDEN OF THE WORKER.

YOU stand within a wide semi-circular sweep of matted banks of rhododendron-bushes, heavy with blossoms of gorgeous scarlet, of pink, or snow white, and rich orange, on a lawn of velvet softness. The entire peace is on you in this perfect garden; your eyes rest gratefully on the harmonies of Nature's colour scheme. You see in it all the luxurious pleasure-grounds of one of England's "Stately Homes." And then of a sudden your silent joy is interrupted by the voice of the guide at your side. "That," he is saying, "is the girls' recreation ground." You rub your eyes. It is hard, indeed, to believe it, but you are standing in the middle of a factory. It is true enough, though. You are in the very heart of the world-famous Bournville Works; but Fairy Kindheart has waved a wand over everything. Mr. George Cadbury, senior partner, not only has ideal, but the kind heart to elaborate them and the clear head to put them into being. His convictions are the fruits of half a century of trade experience within a few miles of smoky, hot-and-Birmingham.



As you enter a fine round this model hamlet one struck with the perfection of its upkeep. Each cottage garden is a picture in its trim neatness, and this, be it noted, is not due to any compulsion, but to a friendly rivalry among the inhabitants, a just pride and determination not to fall away from the founder's ideal. This ideal village centres round a factory employing more than five thousand workers, and sending out its manufactures to every corner of the globe. Messrs. Cadbury are trade lords who govern a vast and profitable business; but they are trade lords who have long ago realized that healthy and happy men and women do better work than unhealthy and unhappy ones. All the young recruits to their staff, girls and boys alike—submit to a medical examination. Founders is the age at which most join. Where there are slight bodily defects, these are noted, and steps are taken to remedy them by physical drill. All girls and boys under sixteen are given two half-hours' drill per week, in the firm's time. It is a pretty sight to see the drilling of a squad of "Cadbury's Angels," as the firm's girl employees are lovingly called. With black tunics over white wool sweaters, belted with green sashes, black knickerbockers, neat black stockings and rubber shoes, they make a perfect picture of youthful grace and sweetness. The boys' and men's gymnasium fronts on the twelve-acre recreation ground, where county cricket fixtures are played every summer.



If one had a scintilla of doubt left as to the benevolent thoroughness of the firm's methods, a walk round the workaday buildings of the factory would summarily dispel it. The great dining hall, airy and light, capable of seating 2500 employees; the spacious kitchen, tiled and spotless; the silver and copper shining like the brass on a battleship, the men-cooks in snow-white aprons and white caps; the fruit counters, where for a cent the girls can buy a plate of cooked fruit bought in the market by Messrs. Cadbury's fruit buyers; the bright and sunny rooms where hundreds of girls in their most becoming frocks of white holland and dainty mob caps sit at their work; the analysts' laboratory, where every raw material used is first tested—all is "Sweetness and Light." Everywhere are signs of the restless desire of the Directorate to achieve for their staff health and happiness. Every convenience such as a fanned through which the fumes of the glue used in fastening the sweet-toons are drawn off instead of being allowed to poison the air; suggestion-boxes into which the youngest worker can slip his or her idea with the certainty that, if it be of value, the reward will be forthcoming; the elaborate pension scheme—all shows what Fairy Kindheart can do when she finds each willing servant as the Cadbury family.



LABOUR IN IDEAL SURROUNDINGS.



Each house at Bournville has a good garden; no building occupies more than one-fourth of its site; the roads are wide and tree-bordered, and about one-tenth of the land is reserved as open spaces. The founder's first intention was to sell the cottages outright, and so create a class of small freeholders. It was felt, however, that the estate might not be carried on in the spirit in which it was initiated. The houses and land have therefore been sold on leases of 99 years, with covenants ensuring the fulfilment of the owners' intentions. The village is not reserved to the employees of Cadbury Brothers; little more than forty per cent. of the inhabitants work at Bournville. All this took place in 1895. In 1900 the estate was transferred to trustees, Mr. Cadbury surrendering all his private interest; the income derived from the houses is now devoted to further building and to the improvement of the estate. The total area is upwards of 500 acres, on which already stand more than 600 houses. The value of this magnificent gift to the nation is close on a quarter of a million.



Rigorous cleanliness is a strict rule at Bournville. Magnificent baths, at a cost of over £20,000, have been erected for the girls, where weekly swimming-baths are given. There is a fine open-air swimming-bath for the boys and men. Athletics of all kinds are encouraged, and there are four flourishing clubs—the Bournville Cricket Club and the Bournville Girls' Athletic Club. There are also a Youthful Club, with reading-room, library, class-room, and natural history museum, two Works Libraries, one for the girls and one for the men, and a photographic dark-room and developing apparatus. Many excellent views are published monthly in the "Worker Magazine," to which the staff entirely contribute. Messrs. Cadbury pay fees for classes at Birmingham or local technical schools and institutes, and progress at such classes is considered when the wages are revised. Classes, too, are held at the Works, including cookery, dressmaking, wood-working, confectionery, and general science. Besides all this, Bournville village possesses a very fine school-house (given by Mr. and Mrs. George Cadbury at a cost of over £25,000) there are 800 children in the schools, and the lady and ladies here, as the kind-hearted head of the firm tells you with a smile of triumph, put to shame by their physical development their less fortunate sisters and brothers whose lot it is to work in surroundings that are by no means so ideal.



As the visitor stands in the large room where five hundred girls are picking bones, suddenly a hand-bell rings. "What is that?" he asks. "The girls are going to sing," says the manager. "It is an idea of the doctor's." He thought the girls bending all day over their tables would benefit by expanding their lungs now and then. So three or four times a day they sing. And then from those hundreds of young throats there rose in a pretty harmony, the best for miles of "Jassie." No factory chorus this, as of a singing class. Straight from the heart it came—the happy, careless singing of merry girls. Ladies there were of all ages; youngsters with rosy cheeks and flapping gizzards; girls nearly out of their teens; girls between twenty and thirty, but no married women. There are no surly faces. They sing as those sing who are filled with the joy of life, whose voices ring with the ring of contentment. What would a hundred ill-matched addresses, a myriad national testimonials to the firm's patriotic efforts, count beside this choral hymning of the triumph of Bournville? Here is a lesson for our capitalists. Let them take it to heart and we need fear no rivals, whether on sea or in market-places. Let Capital call in Fairy Kindheart, and we shall be on our way to solving those terrible social problems which menace our very existence as a nation.

1. FOR THE GIRLS: THE SWIMMING-BATH.
2. WOMAN AT THE WICKET: GIRLS PLAYING CRICKET DURING THE DINNER-HOUR.
3. BOWERED IN FLOWERS: THE GIRLS' GYMNASIUM AND SHELTER.
4. FOR THE DISCIPLES OF ISAAC WALTON: THE MEN'S FISHING-POOL.
5. THE ATHLETIC WORKER: THE MEN'S CRICKET PAVILION AND GYMNASIUM.
6. FOR THE MEN: THE FINE OPEN-AIR SWIMMING-BATH.
7. THE EDUCATION OF THE WORKER: THE BOURNVILLE VILLAGE SCHOOLS.
8. A STately HOME FOR LABOUR: THE LILLY POND IN THE GIRLS' RECREATION GROUND.
9. IN THE OLD ENGLISH MANNER: SHOPS IN BOURNVILLE VILLAGE.
10. LIKE A COUNTRY COTTAGE: A CORNER OF THE GENERAL OFFICES.

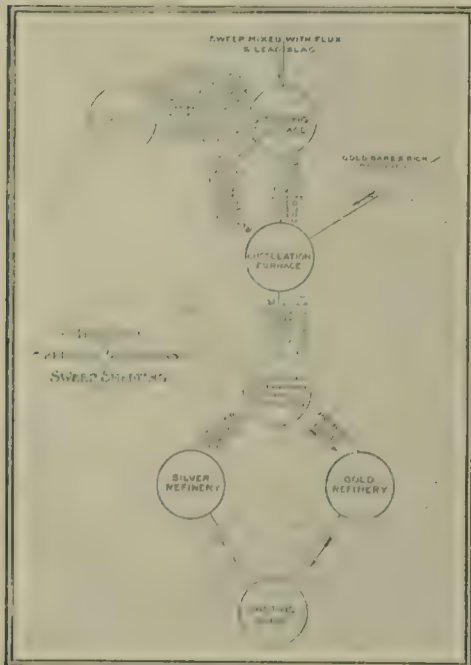
Mr. George Cadbury, the founder of Bournville, is before and beyond all else patriotic. He believes in England; he rejects with a smile the later-day croakings about our decadence; but he declares imaginary and inefficient housing of the working class. Living in dirty, overcrowded houses, with no fresh air and sunshine, robbed of all opportunity for wholesome recreation, what the increase of moral and physical deterioration will be an increase in inefficiency. That again spells an increase of unemployment; an increase of poverty; an increase of crime. It opens up such Bournville, however, there is a great and encouraging lesson to be learned. It proves how ready is the response of the English working-classes to the invitation to individual betterment which such pleasant to be little better than a pig. See him in surroundings which evoke all the self-respect, all the social virtues which

are problems awaiting solution, upon which depend not only our trade supremacy, but the very health of the nation. He thinks it of vital importance to alleviate those ills which result from the fact that England's working millions have to be outstripped in the international race of labour? And what does this outstripping mean? It means that England will be living in a vicious circle. It is a sad story of decadent humanity as well as the inexorable Nemesis of Time upon England's ruin. Pleas of "hardship" and "necessity" will not avail us against this defect. From a visit to this garden city at Bournville, however, there is a great and encouraging lesson to be learned. It proves how ready is the response of the English working-classes to the invitation to individual betterment which such pleasant to be little better than a pig. See him in surroundings which evoke all the self-respect, all the social virtues which



MESSRS. Lees and Sanders are veritable trade magicians. The manufacturing jeweller can send to them the sweepings of his work-rooms' floors, and out of the dust and dirt they will get silver and gold. By elaborate processes, of which the diagram here given conveys some idea, they can find the precious metals to the last particle. They show you a bin of "sweeps." It looks depressingly like the dirt the dustman takes away; but Messrs. Lees and Sanders are "golden dustmen," and they take you on to their smelting-furnace to show you how it is done. The waste material sent in from jewellers is mixed with flux and lead-bearing material. The flux

combines with the base metal, and forms a liquid slag, which is raked off, while the gold and silver are concentrated in the lead underneath. Next comes the treatment in the test-furnace, made of bone-ash which absorbs the oxides of base metals. These oxides are removed by an oxidising blast, and then the mixed gold and silver, or "parting-metal" as it is termed, are laded and taken to the separating pot. Sulphuric acid dissolves the silver, but leaves gold untouched. The



TREASURE CONTAINED IN REFUSE: DIAGRAM SHOWING MAIN OPERATIONS IN RECOVERING GOLD AND SILVER.

materials they work on are anything which contains gold or silver. They have boxes of silver spoons, cigarette-cases,



HANDLED BY THE "GOLDEN DUSTMEN": ONE HUNDREDWEIGHT OF SWEEPINGS AND THE TWO AND ONE-SIXTH OUNCES OF GOLD AND SILVER (AS SHOWN BY THE SHADED SPHERE IN THE CENTRE OF THE BLACK DISC) EXTRACTED FROM SUCH A QUANTITY.

So perfect is the elaborate series of processes that it is certain that none of the precious metals remains unextracted from the sweepings, whether they be rich or poor.

buckles, old battered and bent jewellery, chains, rings, charms, trinkets—one and all of the hotch-potch from pawnbrokers. They make a speciality of buying lots from country jewellers, and one feature in this connection is that a parcel of gold and silver reaching the works in the morning is assayed and the value ascertained and remitted to the vendor the same evening. They get metals direct from the Queensland goldfields, sweeps from as far West as Chicago, concentrated ores from West Africa, gold and silver scrap and lemel from manufacturers throughout the kingdom.

But their most marvellous work is on sweepings. They send down their man, who mixes the sweep at the seller's premises, and takes a sample from it with a long instrument like a cheese-taster. This sample is weighed out and pounded till nothing more will pass through a sieve, so fine that it has sixty meshes to the linear inch. The material which will not pass through is treated by itself, and the value of it is added to that of what does pass through. The fine material is treated with lead, a replica on a small scale of the treatment in bulk. So accurate are these assays that the firm can tell to a few pence almost

what a sweep is worth. In their balance-room you can realise how microscopic are their transactions. There they have scales which can weigh to a five-hundredth of a grain. What this means can best be made plain by the fact that a girl's hair weighs about the fiftieth of a grain, and thus Messrs. Lees and Sanders' balance can weigh metal to the weight of a tenth of a girl's hair. To pass through their works is to learn the lesson that small things are not to be despised.

The piles of dirt look so hopeless that it is hard to realise that a famous firm prospers by dealing in it.



CUPOLA FOR TREATING SLAGS: LEAD CONTAINING GOLD AND SILVER ISSUING FROM THE FURNACE.



THEY are modest contrivances—hooks-and-eyes—and one would readily believe that there was very little to be said about them. Yet they have a history and more than one *raison d'être*. About them, too, strange as it may appear, is the shadow of many a human tragedy. How numerous and how poignant those tragedies were, was disclosed not long ago before a Select Committee of the House of Commons, which investigated the conditions under which the carding of hooks-and-eyes was carried on in certain instances. It was before this Select Committee that Mr. J. G. Newey, of Birmingham, who is a large maker of hooks-and-eyes, made it abundantly clear that all the hooks and eyes bearing his name were carded by machinery and that young girls operating these machines were able to earn fair wages on an eight-hour day system. That fact struck the public attention and is probably remembered by many. Newey's hooks-and-eyes have other characteristics which it is just as well

Mr. J. G. Newey is the Managing Director of Newey Brothers, Ltd.,

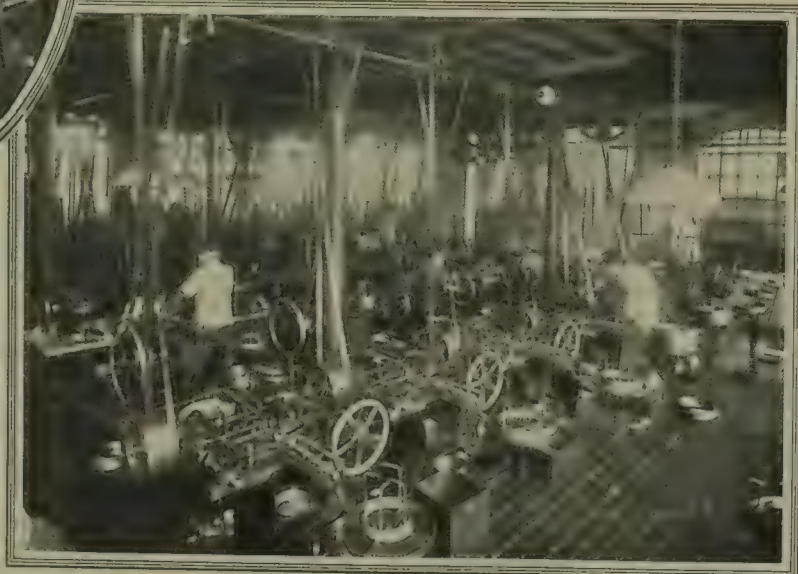
probably the oldest, as well as the largest, hook-and-eye works in the world. Before 1846 hooks-and-eyes were made by hand, principally by home workers; and Mr. J. G. Newey's grandfather was the inventor of the first machine for automatic production.

Newey's hooks-and-eyes have the great advantage of not rusting or staining the garment. In their factory there are nearly 400 employees, with an army of out-workers. The hooks-and-eyes are manufactured in brass, steel, and nickel in every variety of size and shape. They are made from the wire by machines turning out from 50 to 300 a minute. They are brightened in circular or hexagonal barrels containing polishing substances and revolving at a carefully graded speed, and are afterwards japanned or silvered and tinged by other processes according to requirements. Newey's hooks-and-eyes probably reach as many districts and countries as any other existing article of commerce.



SUCCESSORS TO THE PIN AND BUCKLE OF OLD: JAPANNING HOOKS-AND-EYES.

Birmingham, a firm which can make the remarkable boast that it has belonged to five generations of the same family. It was originated by the great-great-grandfather of the present directors, and was left by him to his eldest son in the year of the Revo-



A VAST CHANGE FROM 1846: IN THE HOOK-AND-EYE MACHINE SHOP.

The hooks-and-eyes are made of brass, steel, or nickel, by machines that turn out from 50 to 300 a minute. They are japanned, and are then silvered and tinged by various processes. All the hooks and eyes are produced by British labour, and under the very best conditions, as inspectors bear witness.

that the women of the country should know. They are produced entirely by British labour and enterprise. lution, 1798. The factory was thus established about the middle of the eighteenth century, and is now They are, for example, put up in bales and are sent by mules up the Andes and other high mountain ranges.

THE BEGINNINGS OF THE BUTTON— AND ITS PRESENT.

THE manufacture of buttons began in Birmingham, and since the first button was made has flourished within the city's boundaries. As an industry it may be said to date its being from Baddley's invention of the oval chuck, and for two hundred years it has been localised in the place that saw its birth. Fortunes have been won in it and fortunes have been lost in it. Its palmiest days were perhaps those of the latter half of the eighteenth and the first half of the nineteenth centuries. From the end of the latter period till within the last few years it had to contend with a wasting competition between firms at home and a determined rivalry from abroad.

The effects of this protracted struggle were disastrous to the trade, and would have been fatal had it continued. Fortunately, it became clear to the best minds in the industry that if firms at home continued to fight each other while the foreigner was raking them fore and aft, the business must be extinguished in Birmingham and in England, and the whole of the immense volume of trade pass into alien hands. It was out of that state of feeling that Buttons, Ltd., grew. The men who promoted it were not actuated by mere hope of gain or a desire to feather their own nests. The amalgamation of the firms of which it is composed was brought about for the larger purpose of fighting the foreigner on more equal terms. Before the union there was, hardly, a British firm that was not selling some of its goods at a loss in a desperate fight for life. Buttons, Ltd. is a combination effected in 1907, of several of the

difficulty in distinguish- home-made, for since ing the alien from the the passing of the Mer- merchandise Marks Act every card of buttons of foreign manu- facture has had to be marked with the name of the country of origin. There is thus no excuse for buying work from

go-lucky indolence or liber- ality, might be attributed by others. Liberality, like charity, should, however, begin at home, and neither folly nor indolence is an excuse for neglect where certain duties are due. The British button industry has, however, no need of charity or patronage. It stands on its merits, and its productions speak for themselves. In the range of goods turned out by Buttons, Ltd., there is not a description of button that is not represented. From the first process to the last, the buttons are made entirely by the Company. Their volume is such as to keep three factories going, and to employ several thousands of hands. The machines and tools are remarkably varied and dexterous, and in their results unparal- leled. In the Warstone Lane and Clissold Street factories linen buttons are chiefly made. These factories are as spotless, as well kept, as drawing-rooms. The largest works of the firm are in Portland Street, and these are given over to the manufacture of every type of button except the linen button. One department here is devoted to box- making, and another to the printing of the firm's catalogues and literature. The processes of manufacture are endless in number. Cutting, stamping, pressing, drilling, rim- ming, counter-sinking and carding machines tap and whirl on every side. Some machines— to be seen nowhere else—perform each a dozen operations. Pearl, ivory, steel, buffalo- horn, brass, braid, leather, and metal are some of the materials used. A large trade is done in buttons of vegetable ivory—the kernel of the nut corozo, hard as marble, but very like a potato in form and colour, which is found in some



CONTINUING A GREAT INDUSTRY THAT BEGAN IN BIRMINGHAM:
BUTTON-MAKING—COVERING LINEN BUTTONS.

The linen buttons turned out by Buttons, Limited, are made chiefly in the Warstone Lane and Clissold Street factories. Mr. J. R. Green, the Chairman of the Company, has been in the linen-button trade for some seven-and-fifty years.

other than British hands. Yet the foreign button still finds a ready sale here at an equal price. It is hard to

kernel of the nut corozo, hard as marble, but very like a potato in form and colour, which is found in some



METAL TROUSER-BUTTONS IN THE MAKING.

All sorts of materials are used in the making of buttons, including pearl, steel, ivory, brass, and other metals, buffalo horn, braid, and leather, to say nothing of marble, stone, rock crystal, jet, earthenware, porcelain, enamel, and coral.

largest button-making firms in Birmingham. One of the results is that England to-day turns out buttons that are more varied in type and better in quality than those of any other country in the world.

Buttons, Ltd., are, moreover, able to supply all the buttons required in these isles. They own machinery and are in possession of methods known to no other firm. Every one of their directors is a man who has worked his way upwards to the head of the industry. Mr. John R. Green, the Chairman of the Company, to whose courage, foresight, and organising skill the existence of Buttons, Ltd., is mainly due, has been fifty-seven years in the linen-button trade, and knows every machine in it to-day. Indeed, he invented many of the machine-tools used, all of which are made by the Company on its own premises.

It is extraordinary that with this unrivalled organisation at our command the foreign-made article should still find a market within our shores. The superiority of the British button, and especially of the British linen button, over the foreign product is undoubted, and has earned for it a world-wide market. And there is little

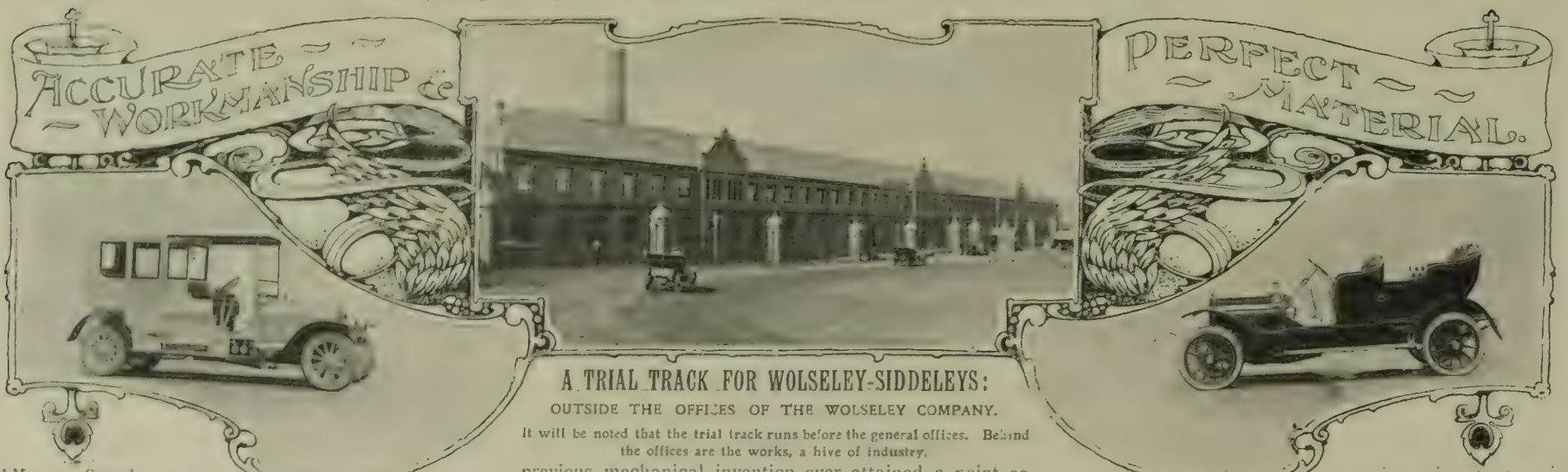
say what trait in the national character that fact discloses. "Sheer folly," might be the verdict of some; a happy-

South American swamps. These nuts are cut by swiftly revolving saws, and shaped into buttons, which are then polished in shaking-mills, that never stop for an hour, day or night.

On the foundation of the modest button, it will thus be seen, has been built up a noble industry, and no slight measure of the commerce and wealth of a great city. In the hands of its inventor the button was probably a crude, ill-made, inartistic thing—a disc of hard wood or bone pierced with two holes. Since then not only the brains and fingers of talented men, but Acts of Parliament and regulations innumerable have gone to its improvement. Marble, stone, rock crystal, jet, earthenware, porcelain, glass, enamel, wood, ivory, horn, bone, coral, and mother-of-pearl are among the materials that have been used in its making. Of the fruits of all this labour and invention, Buttons, Ltd., is almost the sole heir. It stands on the spot where that industry first saw the light, and where it grew and prospered; and by a skilful policy of concentration, and by the patient labour of years, it is leading that industry on to a point of development such as it has never before known.



"PEARLIES" FOR THE ARISTOCRAT AND FOR THE PEOPLE: PEARL-CUTTING.



H.M. THE QUEEN'S 45-H.P. WOLSELEY-SIDDELEY LIMOUSINE.

WHEN the repeal of the old "Red Flag" Act

in 1896 swept into oblivion the antiquated restrictions on mechanical road traffic, thus opening up to English manufacturers the possibilities of the motor-car industry, it was inevitable that Birmingham, the home of engineering enterprise, should play a prominent part in the development of the new vehicles. England owes much to those early pioneers, whose steadfast faith in the future triumphed over all the difficulties of the beginning, and culminated in the production of the autocar as it is to-day. It is no mere figure of speech to say that the modern autocar is a masterpiece of decorative art and of engineering skill. And in the work of bringing it to this high standard, none have behind them a more honourable record of achievement than the Wolseley Tool and Motor Car Company, of Adderley Park, Birmingham, which has to-day a world-wide fame.

The present Company, which is a branch of the great firm of Vickers, Sons and Maxim, Ltd., was established in 1901, taking over the works and the business of an older Wolseley Company. As the title indicates, the intention was to combine the manufacture of machine tools with that of motor cars, but successive years have seen the motor business increase so rapidly that now it practically monopolises the whole

A TRIAL TRACK FOR WOLSELEY-SIDDELEYS:

OUTSIDE THE OFFICES OF THE WOLSELEY COMPANY.

It will be noted that the trial track runs before the general offices. Behind the offices are the works, a hive of industry.

previous mechanical invention ever attained a point so near perfection in so short a period as the automobile. Years of patient experiment and unremitting endeavour have thus had their reward. And now no criticism can be levelled at a Wolseley-Siddeley car, other than that

A WOLSELEY-SIDDELEY 18-H.P. IMPERIAL PHAETON.

boat *Wolseley-Siddeley II.*, which beat all previous records in the International motor-boat races at Monaco

this year, will still be fresh in the public memory. It was a triumph of design, which only engineers can fully appreciate, to install 700-h.p. in a 50-foot boat; and nowadays, when so much is heard of the national decadence, it is gratifying to find an English firm proving its pre-eminence over American, French, Italian, and other rivals. The speed attained by the *Wolseley-Siddeley II.* (or *Ursula*, as it was subsequently named by the Duke of Westminster) was 34.5 knots—a record figure, giving the Wolseley Tool and Motor-Car Company the distinction of having built the fastest boat in the world. And now another record will have to be put to their credit. The *Swiftsure*—a superb motor-yacht, built by this company to the order of Prince Sheremetieff—has voyaged under her own power from Cowes to St. Petersburg, a distance of sixteen hundred miles. This is the longest voyage ever attempted by a motor-boat.

A salient feature in the history of the Wolseley Company has been the steady annual increase in the volume of orders received. Extension after extension has been found necessary and the Directors have reason to congratulate themselves on the foresight which rendered it easy to make these additions



MANY MOTOR-CARS IN THE MAKING: INSIDE ONE OF THE GREAT ERECTING-SHOPS.

The scenes in the shops are particularly remarkable when it is remembered that as recently as 1896 the Red Flag Act was still in existence, and the motor-car had to take rank with the traction engine that rolled the roads.

implied in the querulous complaint of "early Victorian" people that cars in general are too efficient! Another very interesting branch of this Company's

extension has been found necessary and the Directors have reason to congratulate themselves on the foresight which rendered it easy to make these additions



NEARING THE LAST OF MANY PROCESSES: ONE OF THE GREAT ERECTING-SHOPS.



THE GATHERING TOGETHER OF THE PARTS OF A PERFECT WHOLE: THE ASSEMBLING-SHOP.

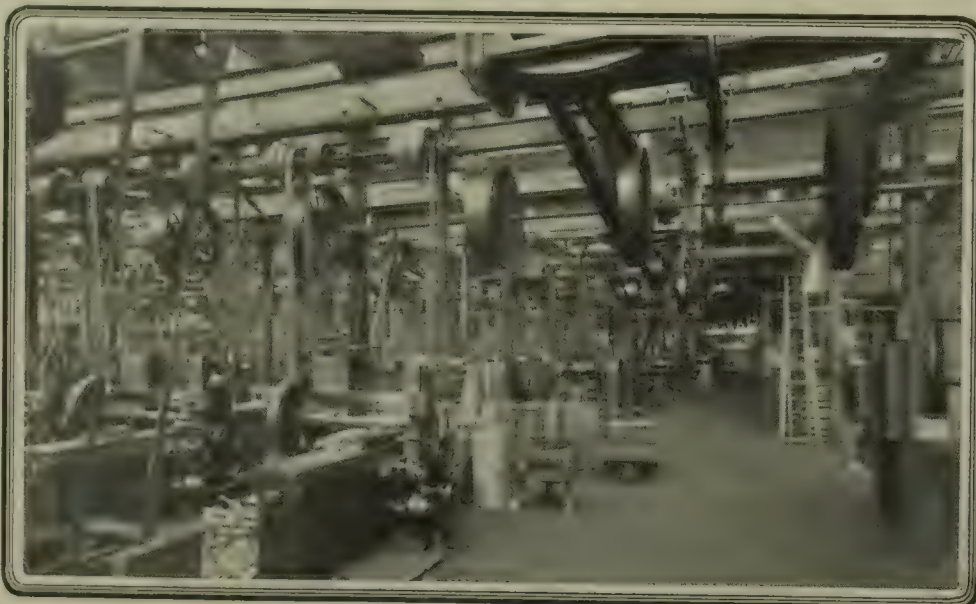
of the immense works at Adderley Park, which cover nearly twenty acres and employ upwards of three thousand men. There is really little cause for surprise in this, for nothing could have been more favourable to the evolution of a perfect chassis than the extreme precision and accuracy which are essential to the making of machine tools. One effect of this accurate construction is seen in the silence and smooth running of the cars manufactured by this Company—a characteristic which has passed into a motoring proverb. Another factor, which has conduced largely to success is that the parent company, Messrs. Vickers, Sons and Maxim, Ltd., are renowned for the production of high-grade steels and metals, and their invaluable experience in this direction has always been at the service of the motor-car branch.

Even before the formation of the present Company, the old Wolseley Company had experimented with motor-cars, and their first car, Wolseley No. 1, together with one or two early successors, is now on show in the historical section of the International Exhibition. Very ingenious and interesting, too, are these old exhibits, but it is a far cry from them to the superb and reliable cars of to-day. It is doubtful whether any

business, which is growing by leaps and bounds, is the production of marine engines, motor-launches, and auxiliary motor installations. The recent victory of the

whenever growth of trade demanded greater facilities for output. The immense establishment at Adderley Park, splendidly organised, and equipped with the most modern appliances, is a standing testimony to the excellence of the Company's productions and to the acumen and business skill of those who have guided its fortunes. The plan of the works is on the lines of economic efficiency. There is a long range of modern offices in which the clerical staff is accommodated. The trial track, where every car undergoes a searching test, is in the foreground of the building. Behind the office buildings are the works, which present a hive of industry full of living interest.

The varied processes which go to the making of an autocar, and the devices adopted to ensure something very like perfection, cannot here be dealt with. What will be clear from the foregoing is the pre-eminent position attained by the Wolseley Tool and Motor-Car Company in the difficult art of motor-car construction. Nor can one set a limit to the possibilities that lie before a firm which has already taken so strong a lead in what is, after all, a comparatively young industry.



A MAZE OF BELTING: IN THE MACHINE-SHOP.

Some idea of the size of the works may be obtained when it is said that they cover some twenty acres of ground, and that over three thousand men find employment in them.

IN THE PUBLIC EYE AT BIRMINGHAM.



1. PROFESSOR ALFRED HUGHES, M.A., Dean of Faculty of Arts in Birmingham University.
2. A. D. BROOKS, Esq., Member of the Birmingham City Council.
3. E. V. HILEY, Esq. (Town Clerk), Hon. Sec. of Royal Visit Celebration Committee.
4. J. S. DUGDALE, Esq., K.C., Recorder of Birmingham.
5. ALDERMAN F. C. CLAYTON, Pro-Vice-Chancellor of Birmingham University.
6. G. H. MORLEY, Esq., Secretary of Birmingham University.
7. E. PARKES, Esq., M.P. (Liberal Unionist) for Central Birmingham.
8. PROFESSOR W. J. ASHLEY, M.Com., Dean of the Faculty of Commerce at Birmingham University.
9. SIR G. H. KENRICK, Lord Mayor of Birmingham.
10. ALDERMAN C. G. BEALE, Pro-Chancellor of Birmingham University.

11. PROFESSOR J. H. POYNING, M.Sc., F.R.S., Dean of the Faculty of Science at Birmingham University.
12. DR. R. S. HEATH, Vice-Principal of Birmingham University.
13. J. F. SHAW, Esq., High Sheriff of Warwickshire.
14. SIR OLIVER LODGE, F.R.S., etc., Principal of Birmingham University.
15. THE RT. REV. CHARLES GORE, D.D., Bishop of Birmingham.
16. PROFESSOR GILBERT BARLING, M.Sc., M.B., F.R.C.S., Dean of the Faculty of Medicine at Birmingham University.
17. SIR HATTEWELL ROGERS, J.P., Formerly Lord Mayor of Birmingham.
18. THE RT. HON. J. AUSTEN CHAMBERLAIN, M.P. (Liberal Unionist) for East Worcestershire.
19. J. S. TAYLOR, Esq., Chairman of the Birmingham Chamber of Commerce.

20. VISCOUNT MORPETH, M.P. (Unionist) for South Birmingham.
21. THE MARQUESS OF HERTFORD, Lord-Lieutenant of Warwickshire.
22. SIR BENJAMIN STONE, F.S.A., M.P., etc., Member (Conservative) for East Birmingham.
23. THE RT. HON. JESSE COLLINGS, M.P. (Unionist) for Bordesley, Birmingham.
24. LIEUT.-GENERAL SIR CHARLES DOUGLAS, K.C.B., General Officer Commanding-in-Chief the Southern Command.
25. ALDERMAN GEORGE BAKER, Mover of the Address to their Majesties at Birmingham.
26. ALDERMAN H. J. SAYER, Deputy Mayor of Birmingham.
27. SIR FRANCIS W. LOWE, President of the Birmingham Conservative Association.

28. THOMAS ROWBOTHAM, Esq., Contractor for the New Buildings of Birmingham University.
29. GEORGE CADBURY, Esq., Founder of the Model Factory at Bournville.
30. J. G. NEWBY, Esq., of Messrs. Newby & Co., Makers of Hooks-and-Ryes.
31. J. I. MIDDLEMORE, Esq., M.P. (Liberal Unionist) for North Birmingham.
32. F. W. V. MITCHELL, Esq., Chairman of Messrs. William Mitchell (Pens), Ltd.
33. JOHN R. GREEN, Esq., Chairman of Buttons Limited.
34. ALDERMAN THE RT. HON. WILLIAM KENRICK, P.C., J.P., Second of the Address to their Majesties at Birmingham.
35. HERBERT F. ELKINGTON, Esq., Chairman of Messrs. Elkington & Co.
36. THE RT. HON. JOSEPH CHAMBERLAIN, M.P., Chancellor of the University of Birmingham.

Photographs Nos. 1, 2, 5, 6, 8, 9, 10, 11, 12, 14, 16, 17, 21, 25, 26, 28, 31, 34 and 36 by Whitlock; 3 by Lafayette; 4, 7, 15, 18, 20, 23, 24, 27 and 29 by Elliott and Fry; and 19 by Maull and Fox.

THE LITTLE STEEL PEN.



THOUSANDS OF PENS AS PART OF A TRADE-MARK: THE OUTWARD SIGN OF A WORLD-FAMOUS FIRM.

It will be noted that many nibs go to the making of this.

colour can be rung from white, tint, bronze, purple, blue, pale blue. Other colours are used, the black being a favourite. After colouring, the pens are varnished and dried, and finally examined singly in looking-over departments.

Till 1830, about which time William Mitchell's was founded, the goose quill was in general use. The first

attempts to replace the quill were crude though fairly effective.

These primitive methods attracted the attention of William Mitchell, who came from Sheffield to Birm-

PRESENT FATHER OF THE PEN TRADE:

MR. A. B. MITCHELL,
Eldest Son of the Founder of Messrs. William Mitchell's.

ingham in 1825, and suggested to him the use of the tool press for cutting and slitting. William Mitchell had opened a factory in St. Paul's Square, and the firm remained there till 1852, when they removed to their present works in Cumberland Street. In 1843 a great step forward was made by William Mitchell's invention of the alphabetical series of letter-pens, so named because of the bright embossed letters upon them. The pens of this series, each varying in character, and bearing its own distinguishing letter, formed a collection suited to all tastes and needs. The names of some of these pens have literally become "household words." There is, for example, the gilt "J" pen, which has been ordered for the use of the King, and is supplied through the London house of William Mitchell (Pens), Ltd., to his Majesty's Household. It was with one of William Mitchell's "N" pens that a

former King of Denmark signed the new Convention with his people, and the nib is still to be seen under a glass case at the Rosenberg Schloss, Copenhagen. Of the "J" pen alone the firm manufactures to-day something like sixty-five patterns in different colours, metals, width, and variation of point. The "Manifold" pen, familiar to every business house, is one of this firm's original patterns, and appears in their "Celebrated Number Series." This series now comprises two hundred distinct varieties. This firm supplies the Government here and in all the Colonies. They are Royal Warrant holders, and their annual output of pens is over fifty millions a year. William Mitchell's business is now managed by the sons and grandsons of the founder. To-day, when the firm is looking forward to its centenary, it is curious to note how the name William still persists among the founder's descendants. The Managing-Director in Birmingham is Mr. William B. Mitchell, who has worked his way through every department of the business established by his grandfather. Mr. Francis William V. Mitchell is Chairman, and Mr. William F. Mitchell is on the board; Mr. T. A. Mitchell is Managing-Director at 44, Cannon Street, London, whence a change will shortly be made to Queen Victoria Street. The father of the Managing-Director, Mr. A. B. Mitchell, is also a member of the board, and is the oldest living member of the pen industry. The City of London Arms are the trade-mark of this firm. The privilege of a similar use is now denied to anyone.

FROM THE modest appearance you would suppose the steel pen to be easily made. Yet in Birmingham at William Mitchell's—the originator of the "J" and letter-pens and a first maker of

pens slit by press tools—the pen has often to pass through as many as thirty processes, a failure in any one of which would ruin it. Those processes begin when the fine crucible steel of which the pens are to be made arrives from Sheffield in long thin sheets. These have to be cut into strips, which, after annealing, are brightened and thinned by rolling. After having been rolled out to the required thinness, which can be gauged to the thousandth part of an inch, the strips are given in charge of women, who pass them through powerful cutting-presses, the punches and dies of which are formed according to the intended shape of the pen. As the piece of steel passes through the press the punch falls upon it, cutting out flat pen shapes at regular intervals. At this stage the pens or "blanks" are flat. The firm's name is then stamped on each pen. In a similar way the piercing and side-

cutting are done. Up to this point the steel is in such condition that it would break if sufficiently bent. It has therefore to be annealed, or made softer and more pliable, which is done by heating the pens red-hot and allowing them to cool gradually. Pens such as the "J," bearing a distinctive mark, are then embossed with their marks or letters. These flat "blanks" have next to be moulded into the curved shape with which we are familiar in the finished article of commerce. They are slipped into the press between a punch



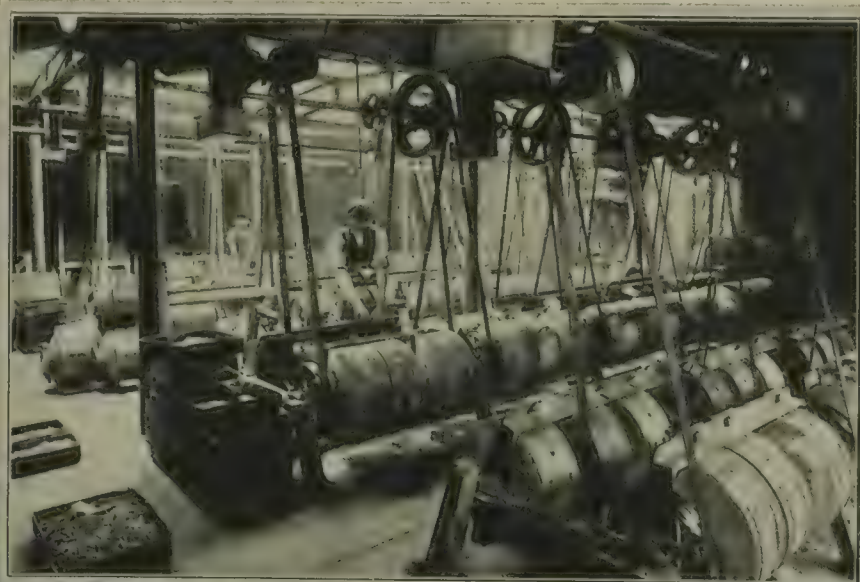
RAISING PENS.

and die, and receive a smart blow, forming them to the required shape. They must then be hardened and tempered. The former process is accomplished by encasing them in cast-iron cells, heating them in "muffles," or while in this condition into wells of whale-oil. The steel, when thus hardened, becomes as brittle as glass, but the tempering that follows gives the pens a delicate springy quality. The scale acquired in the hardening process is scoured away in shaking-cans. Polishing is the next process, and then the pens are "straight" and "cross ground" in the grinding-rooms. Next they are taken to a form of press, used in early years by William Mitchell, the founder of the firm, and are slit by a tempered tool of great accuracy and keenness. The processes do not end even there. The nibs are again polished, and are re-consigned to barrels, to which heat is skilfully applied, that the contents may be coloured. This last is a beautiful process, by means of which the changes of



"NAMING" THE PENS: GIVING NIBS THEIR DISTINCTIVE MARKS.

The nibs are in the flat, "blank" stage, when they are stamped with the name of the makers. After having been so treated, and after the piercing and side-cutting have been done, they are made softer by annealing, and so are prepared for bending. Then those, such as the "J," that bear distinctive marks, are embossed accordingly.



REMOVING THE SCALE GATHERED DURING THE HARDENING PROCESS: THE SHAKING-CANS AT WORK.



THE HARDENING OF THE PENS: PLACING THE NIBS, IN CAST-IRON CELLS, INTO THE FURNACES.

The "blank" pens are stamped out of thin strips of steel. Then follow the stamping of the firm's name on the pens, piercing and side-cutting, annealing, embossing, moulding, hardening and tempering, polishing and grinding, slitting, again polishing, colouring, again annealing, then varnishing and drying. The hardening is done by heating the pens to a red heat and by plunging them while they are in that condition into wells of whale-oil.



PREPARING THE STRIPS OF STEEL OUT OF WHICH THE PENS ARE STAMPED: ROLLING OUT THE METAL.

ART AND THE JEWELLER: A SCHOOL THAT WARNS THE INEXPERT.

DRAWN BY S. BEGG, OUR SPECIAL ARTIST IN BIRMINGHAM.

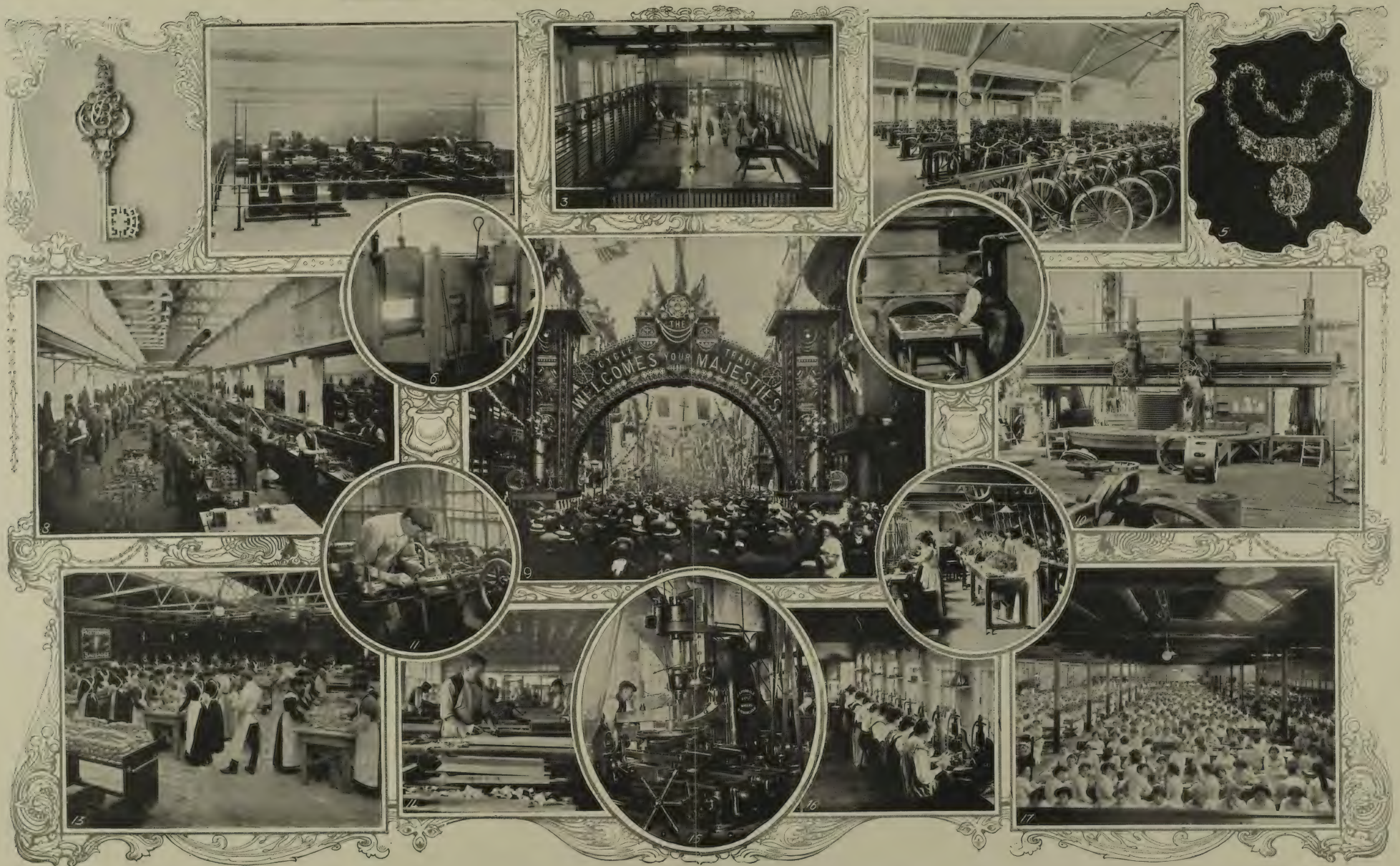


BETTERING THEIR ARTISTIC TRAINING: AN EVENING CLASS AT THE BIRMINGHAM SCHOOL FOR JEWELLERS AND SILVERSMITHS.

The Birmingham Jewellers' Association was founded in the Jubilee year of Queen Victoria, and from its very beginning has had as one of its chief objects the bettering of the artistic training of young people engaged in the jewellery trade. At first the Jewellers arranged to fit out work-rooms in one of the existing branch schools of the Municipal School of Art. Later, the Victoria Street School was created as an independent art school, governed by the Jewellers' Association and the School of Art. The art-training given is very thorough. "Free admissions [we quote from Mr. A. S. Wainwright's pamphlet on the School], direct from school, are granted to lads who intend to become jewellers or silversmiths. These lads commence their art-training concurrently with their workshop training, and any lad who does not, in the opinion of the masters, seem fitted for the trade he has chosen is advised not to follow it any longer. This is a pretty advanced conception of the functions of a school, but in the interest of the students and the trade alike it seems a sound view to take." The jewel presented to the Queen on the occasion of last week's visit was made almost entirely at this school.

ONCE RATED AT FOUR HIDES, VALUED AT TWENTY SHILLINGS; NOW CENTRE OF THE INDUSTRIAL LIFE OF THE MIDLANDS.

INDUSTRIES THAT HAVE MADE THE NAME OF BIRMINGHAM THE PASSWORD OF COMMERCE.



- PRESENTED TO THE KING: THE GOLD KEY WITH WHICH HIS MAJESTY OPENED THE NEW BUILDINGS OF BIRMINGHAM UNIVERSITY.
- ENGINES THAT DRAW 50,000 GALLONS OF WATER FROM ARTESIAN WELLS IN AN HOUR: PUMPING-ENGINES AT MESSRS. MITCHELLS AND BUTLERS.
- THE PLAY THAT PREVENTS JILL BEING A DULL GIRL: IN THE GYMNASIUM AT THE EDGBASTON HIGH SCHOOL FOR GIRLS.
- THE WORKERS' STEED: THE WOMEN'S BICYCLE-HOUSE AT BOURNVILLE.
- PRESENTED TO THE QUEEN: THE JEWEL GIVEN TO HER MAJESTY ON THE OCCASION OF THE ROYAL VISIT TO BIRMINGHAM.
- GOLDEN DUSTMEN AT WORK: SMELTING "SWEEPS" FROM JEWELLERS' FLOORS AT MESSRS. LEES AND SANDERS.
- STAINED GLASS IN THE MAKING: RUNNING THE SECTIONS INTO A BURNING KILN AT MESSRS. JOHN HARDMAN'S.
- IN A GREAT MOTOR WORKS: PART OF THE GEAR-FITTING SHOP AT THE WOLSELEY TOOL AND MOTOR-CAR COMPANY'S.
- THE MOS, REMARKABLE TRIUMPHAL ARCH IN BIRMINGHAM: THE CYCLE TRADE'S WELCOME.
- OF THE AGE OF ELECTRICITY: A 24-FOOT-6 BORING-MILL AT THE GENERAL ELECTRIC COMPANY'S.
- SUCCESSORS TO THE PIN AND BUCKLE: A SPRING-HOOK MACHINE AT MESSRS. NEWBY BROTHERS.
- THE MANUFACTURE OF BUTTONS: PEARL-BUTTON MAKING AT MESSRS. BUTTONS.
- A GREAT MODEL FACTORY: TYING SAUSAGES INTO BUNDLES AT MESSRS. PALETHORPES.
- SHOP-FITTINGS IN THE MAKING: ONE OF THE WORKSHOPS AT MESSRS. HARRIS AND SHELDON'S.
- MECHANICAL SUPPLIES IN THE MAKING: A VERTICAL MILLING-MACHINE AT MESSRS. J. ARCHDALES.
- "YE LITTYL STEEL PEN": PIERCING NIBS AT MESSRS. WILLIAM MITCHELL'S.
- WORKERS IN IDEAL SURROUNDINGS: THE MIDDAY MEAL IN THE GIRLS' DINING-HALL AT BOURNVILLE.

In the time of Edward the Confessor, Birmingham, then a small village, was the property of one Ulwine. After the Norman invasion, FitzAusculf became owner of the manor, which was rated at four hides, valued at twenty shillings. It was in the latter half of the twelfth century, during the lifetime of Peter de Bermingham, that a weekly market was established. Thus Birmingham became a market town. In 1538 John Leland described it thus: "I came through a pretty street as ever I entered. . . . In it dwell smiths and cutlers." Birmingham became a Parliamentary borough in 1832, and a city in 1889. On the occasion of his speech in the Council Chamber, the King referred to it as the chief centre of the industrial life of the Midlands.



THE MAKING OF PATTERNS:
CUTTING THE GLASS INTO THE REQUIRED
SHAPES.

John Hardman and Co., Stained-Glass Window-Makers," does not impress you. Even when you are inside the old Georgian house and mounting the wide stairway, there is little to compel attention. Yet you have sat but a few minutes in the plainly furnished sanctum, chatting to the enthusiastic head of the firm, when you realise that you have escaped for a time from the ordinary Birmingham of commerce into the realm of romance, a world of dim, religious light filtering through the rich colours of wonderful windows in mediæval church and abbey. A great peace, as of the cloistered aisles of some vast grey basilica, broods over the quiet house, home of a business in which no machinery is used.

Messrs. Hardman's business is world-wide. For years running fast into a century this quiet firm has held a unique position in the glass-trade, sending their exquisite manufactures all over the English-speaking world. Canada, Africa, India, Australia, the West Indies, each quarter of our vast Empire has many examples of what Messrs. Hardman's artists can do. And all this has been achieved by sheer merit.

From about the end of the fifteenth century, Mr. Hardman, speaking as an expert, tells you, till the end of George III.'s reign, little or no high-class stained glass was made. The exquisite art fell upon dark days. Then about 1820 there was a renaissance—the Renaissance had had a depressing effect on the art; but its own renaissance came at the beginning of the

IN a quiet street in Birmingham is hidden away one of the most beautiful of businesses. It is a very quiet street, and the neat brass door plate, bearing the inscription, "Messrs.



DESIGNERS AT WORK: IN THE CARTOON-ROOM.

nineteenth century, and it was on the top of the flood of this that the famous Birmingham firm was founded.



AN ART MUCH FAVOURED BY THE CHURCH: GLAZING STAINED GLASS.

The most recent renaissance of the art of stained-glass making dates from the beginning of the nineteenth century, and many of the best examples of the craft that have been made since that time have come from Messrs. John Hardman and Co.'s. They, for instance, were responsible for all the stained glass in the Palace of Westminster when the Houses of Parliament were rebuilt at the end of the reign of William IV.

How soon they won their way to a foremost position in the trade is best gauged by the simple fact that they were responsible for all the

stained glass in the Palace of Westminster when the Houses of Parliament were rebuilt at the end of William IV.'s reign. The superb east window of St. Stephen's Hall, then supplied by them, was blown out in a Fenian explosion, and was replaced by them from the original designs.

To them, too, was entrusted the restoration of the stained glass at the Tower, and more recently they had the contract for the Rolls Office. But their speciality has always been ecclesiastical glass, and the great north window in Sydney Cathedral, perhaps the largest stained-glass window in the world, is theirs, as is also the marvellous west window in Worcester Cathedral, a gift to the Chapter from the late Earl of Dudley. For the Duke of Norfolk they are making all the windows for the church he is building in Norwich from designs by Mr. John Scott, in thirteenth-century style. The religious feeling of the mediæval glass is a characteristic of the firm's work. All over the Continent, to Bruges, to Chartres, and to the other centres of the finest mediæval coloured-glass work, they send their artists, who have all been trained from their fourteenth year under the personal care of principals of the firm. These artists never copy, but study the costumes and then execute original designs. Years back, a near approach to mediæval glass was impossible, for the exquisite richness of the tints was not to be matched. Chemical knowledge, however, has made such strides within the past twenty-five years that now any tint of glass can be obtained.

THE ART OF A BEAUTIFUL BUSINESS:
PAINTING STAINED GLASS.

FOOD FOR THE FASTIDIOUS: IN A GREAT MODEL FACTORY

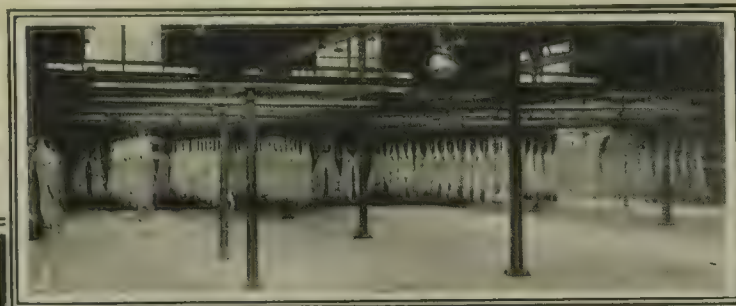
NO picture of Birmingham's many-sided industrial life would be complete without a reference to the famous sausage-factory at Dudley Port. There are many people to whom Palethorpes, Ltd., are as well known by repute for their model-factory as for their delectable Royal Cambridge sausage. Given the right kind, it is admitted that there is no food more nourishing or more agreeable than sausage. The question is, which is the right kind? Palethorpes have built up a magnificent business by producing an article the purity and absolute genuineness of which cannot be doubted. Their factory is situated in the railway centre of England, with easy access to the principal pig-markets. It has more than three acres of roofing, and is being constantly enlarged. It makes two tons of sausages per hour, and refrigerates a thousand pigs at a time. During the week preceding last Christmas 136½ tons of sausages were turned out. All of which goes to prove the magnitude of the business done by Palethorpes, Ltd.

Many kinds of fresh and tinned goods are produced at this factory—among them pork pies, hams, bacon, and lard—but the making of sausages is the main business. Into the sausages go the legs, loins, and all the best parts of a pig. Nothing whatever is purchased from dead-meat markets. Between 1892 and 1904 they obtained by their goods fourteen gold medals at the principal Exhibitions held in the United Kingdom. Each pound of sausages is folded compactly, and a band bearing the firm's trade-mark is fixed round it before it leaves the factory. Palethorpes' sausages constantly figure on the menus of the principal Atlantic liners. The Company supplies the Navy, and has a splendid list of royal patrons.

The factory itself is one of the most interesting in



WHERE ROYAL CAMBRIDGE SAUSAGES ARE MADE:
THE FAMOUS MODEL FACTORY AT DUDLEY PORT.



England: the cooling-hall alone, with the carcasses of a thousand pigs, is astonishing. After cooling, the pigs are weighed without being removed from the rails—one hundred in fifteen minutes—and are then run into large refrigerators, preparatory to being cut up for the manufacture of the far-famed sausages. The air of the whole place is fresh and sweet; tons of water are used daily in keeping every department wholesome and clean; only employes of proved good health are engaged; and everything is done in each department to prevent unnecessary handling in the manufacture of the goods. It would be hard indeed to say what more could be done than is done at this factory to produce an absolutely pure and bona-fide article in ideal conditions. The business was established by the late Mr. Henry Palethorpe in the year 1852.

That it has steadily grown since that time, and that it has kept its reputation absolutely unsullied during all those years, seems the highest testimony that could be given as to the excellence of this firm's manufactures.

The factory, which is situated in the midst of verdant meadows, on the fringe of Dudley Port, is open to responsible visitors, and needless to add, well repays a tour of inspection. There are a large number of departments, all of them airy and spacious, some largely equipped with special machinery, nearly all staffed by hundreds of workers who are models of neatness in person and attire. Adjoining the factory there is a store where freshly made sausages or other goods can be purchased by the employes as they leave for their homes. A large plot of land surrounding the works was purchased by Messrs. Palethorpe years ago, and is gradually being covered, as new wings are added to the factory.



1. IN THE GREAT COOLING-HALL. 2. IN THE PACKING-ROOM: PREPARING THE SAUSAGES FOR DISPATCH TO CUSTOMERS.

MACHINERY THAT MAKES THINGS OF PEACE & WAR.



It is a characteristic of Birmingham that its wide range of skilled industries gives it a large

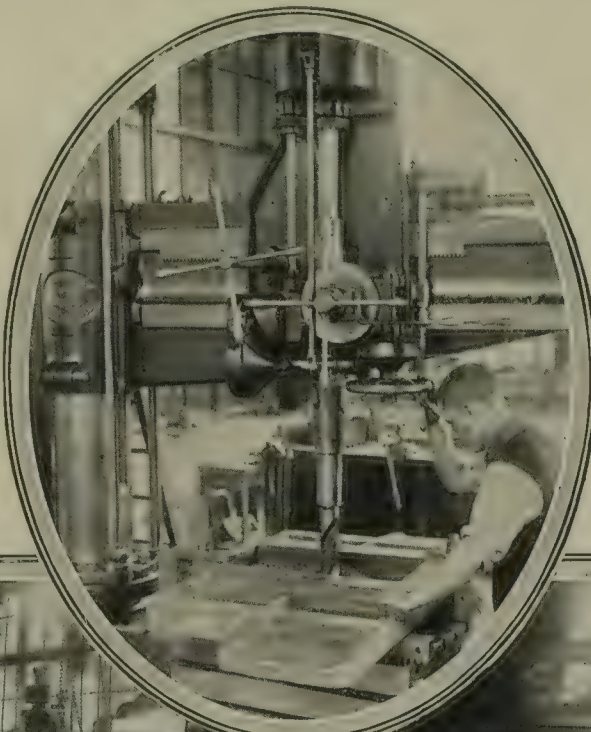
share in the world's greatest productions—a share for which the city does not always get full credit. For example, Birmingham is not generally associated in the popular mind with the building of ironclads and Atlantic liners, yet a remarkable part of the equipment of these floating giants comes from the city. The up-to-date engineering works of J. Archdale and Co., Ltd., of Ledsam Street, exemplify this contributory labour in several directions. While the firm does not build big guns or furnish ammunition, it turns out the machinery by means of which the gigantic shells of 12-inch diameter which are fired from the *Dreadnought's* guns, as well as many smaller projectiles, are made. Similarly, while Birmingham does not build locomotives, this firm has furnished no small part of the highly finished productive machinery in such great railway-building centres as Swindon, Derby, Darlington, and Crewe. In fact, there is hardly a railway in the kingdom which does not obtain many of its mechanical supplies from Archdale's. The same source has been drawn upon for the equipment of universities and technical schools. The engineering section of Birmingham University, visited by his Majesty the King, has drilling and milling machines of the highest type for use by the students.

The establishment is primarily the creation of Mr. James Archdale, who is still its Chairman. His son, Mr. Frank Archdale, is one of the Directors taking a most active part in the practical work, and Mr. Frederick W. Clark is Managing-Director. Although the firm now



WHERE MUCH MACHINERY IS MADE: MESSRS. J. ARCHDALE AND COMPANY'S.

cartridge-cases, and an apparatus for simultaneously turning the head, drilling and tapping the primer hole, and boring the mouth of cartridge-cases for quick-firing guns. The firm's special machinery includes every tool required for manufacturing small arms, revolvers, sporting guns, and quick-firing guns, as well as for manufacturing

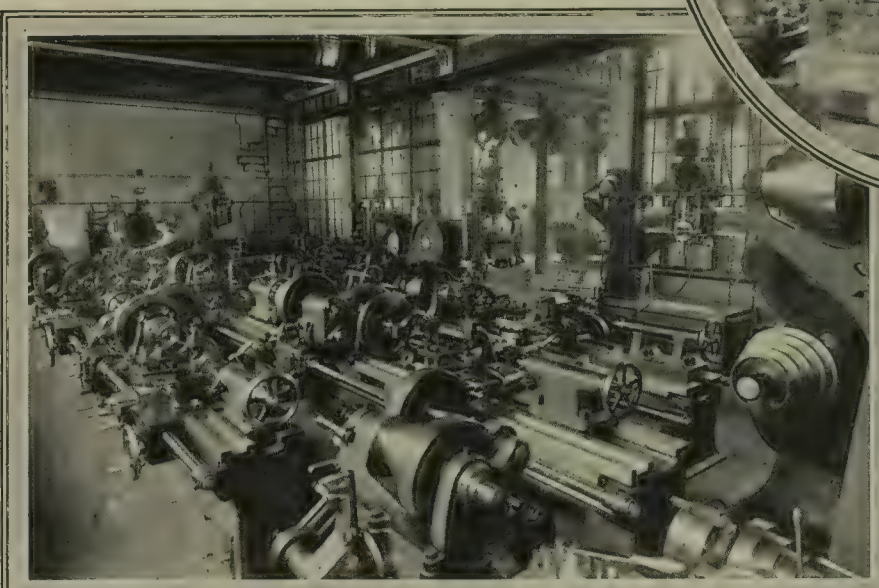


the largest and smallest constituents of firing apparatus. It is

gratifying to learn that conspicuous success has been achieved in meeting foreign competition, and especially that of America. Our Transatlantic cousins claim—and no doubt with some justice—to be the leaders in the production of machines which, in the complexity of their operations, suggest almost human skill and intelligence; but British machinery-makers have, in colloquial language, "taken several leaves out of the American book," and have added a few on their own account, so that America now has very little to exult over.

An essential department of an up-to-date engineering establishment is an efficient foundry, and in this respect Messrs. Archdale are very well equipped. They are able to make all their own castings, producing any size up to twenty tons in weight. With such a wide range of production, naturally an extensive pattern-shop is necessary, and the usual penalty of success is found in a large store of patterns which rapid progress in design has rendered obsolete. This department has the latest devices for wood-working, and, as a precaution against fire, is equipped with an overhead tank, with which the shop can be flooded almost at a moment's notice.

The establishment has frequently been the centre of attraction for distinguished visitors. Among others, a visit was paid some time ago by a high official of the Japanese Government; also by one of the Chinese Ambassadors. The effect of these visits was seen in a practically complete equipment of shell-making machinery for the Japanese Government; also a complete plant of machinery for manufacturing the ammunition of quick-firing field-guns for the Chinese Government. As



MACHINERY THAT IS ASSOCIATED WITH MANY OF THE WORLD'S GREATEST PRODUCTIONS: A SHOW-ROOM AT MESSRS. ARCHDALE'S.

A HIGH-SPEED DRILLING-MACHINE.

It is interesting to note that the engineering section of Birmingham University has, for use by the students, drilling and milling machines of the highest type made by Messrs. Archdale.



MECHANICAL SUPPLIES IN THE MAKING: A GENERAL VIEW OF No. 7 SHOP AT MESSRS. ARCHDALE'S.

employs from 500 to 600 hands, it had a very modest beginning, Mr. Archdale himself commencing operations at Oozells Street, Birmingham, in 1868, with a couple of lads as his sole assistants. There was some significance in the receipt of the first two orders—from Sir Josiah Mason, the founder of the celebrated firm of pen-makers, and Messrs. Kynoch and Co., makers of ammunition—for both are still customers, the former under the new name of Perry and Co. The leading users of the firm's machinery comprise some of the most famous names in the world. Its machines are largely used by the British Government, at the dockyards, and the various arsenals; by Vickers, Sons, and Maxim, Ltd., Cammell, Laird, and Co., Armstrong, Whitworth, and Co., among ship-builders; while the foreign Governments for whom contracts have been carried out include the French, Russian, Italian, Danish, Turkish, Chinese, and Japanese. An enormous quantity of the ammunition used in the Russo-Japanese War by the Mikado's army and navy was produced by Archdale machines.

The enormous progress in the production of war-material has also opened a wide field for the makers of high-class machinery. The firm has risen to the occasion in a remarkable way. The machines turned out include lathes for finished turning of rifle-barrels, machines for small-arms

suitable ammunition and fuses. A tremendous amount of machinery has been supplied for the use of the biggest ammunition firms in the kingdom, in which the mechanism is required to manipulate with equal delicacy and success

a certain amount of apparatus was also furnished to the Russian navy, it is probably no extravagant suggestion that both combatants were equipped for their famous tussle from the same Birmingham house, a fact which says something for our industrial impartiality. But, of course, the principal customer in this line is the British Navy, a very large part of whose ammunition is being produced with Archdale machinery. A great deal of the mechanism at Woolwich has also had a similar origin.

In addition to the engineering shop at the Birmingham University, the firm has placed machinery in the Royal Indian College, the City and Guilds of London Institute, King's College (London), the South Kensington Museum, the Royal Engineering College (Madras), the Armstrong College (Newcastle-on-Tyne), and other similar establishments.

Undoubtedly Mr. Archdale's personality has had an important share in the great success of the concern. He is a thoroughly practical man, with experience in a number of the best shops in the kingdom, and a complete knowledge of every branch of the business. So much versatility has been shown in meeting—and sometimes even in anticipating—modern requirements, that a great future may be anticipated for the Company, whatever are the demands that future may bring.



GRINDING SIX-INCH SHELLS FOR QUICK-FIRERS.

The firm make neither big guns nor ammunition, but the machinery by means of which gigantic twelve-inch shells, and many smaller projectiles, are made.

A PRISON AS WINE VAULTS: HANDLING BY MACHINERY.

BIRMINGHAM is not particularly rich in the antique. Indeed, the Society of Artists and the adjoining offices and warehouse of Messrs. Thomson and Chavasse, Ltd., the wine and spirit merchants, in New Street, the main artery, represent one of the few pieces of the old town that still exist. The whole of this block has a certain mellow picturesqueness, the part occupied by Messrs. Thomson and Chavasse showing the striking contrast between business premises considered suitable half a century ago and some of the palatial houses of the present day. In the basement and at the back are the vaults containing the bins. More interesting still are the firm's premises stretching towards Waterloo Street. These are nothing less than the old debtors' prison, now turned into wine-vaults and bottling-rooms. The prisoners' cells remain intact to this day—witnesses of the callous inhumanity of a not very distant generation—but the walls are now hidden by wine-bottles, binned in the old-fashioned way favoured by Messrs. Thomson and Chavasse. This firm is as interesting in its way as



NOW PART OF THE VAULTS: THE DOOR OF A CELL IN THE OLD DEBTORS' PRISON, SHOWING THE TRAP THROUGH WHICH FOOD WAS PASSED TO THE PRISONER.

The vaults belonging to Messrs. Thomson and Chavasse are of particular interest, for they are the old Debtors' Prison. The cells remain intact.

the premises it occupies. The Managing Director is Mr. Robert C. Chavasse, who is a member of an old Birmingham medical family. The business is entirely of the private-family kind. In the front vaults behind New Street are five huge sherry-tunnels, so ancient and so long in their place



ONE OF THE FEW REMAINING PIECES OF OLD BIRMINGHAM: MESSRS. THOMSON AND CHAVASSE'S OFFICES.

These premises are a remarkable contrast to those of most of the other business houses in Birmingham. The office-window, indeed, is so rare in form that special shutters had to be made for it.

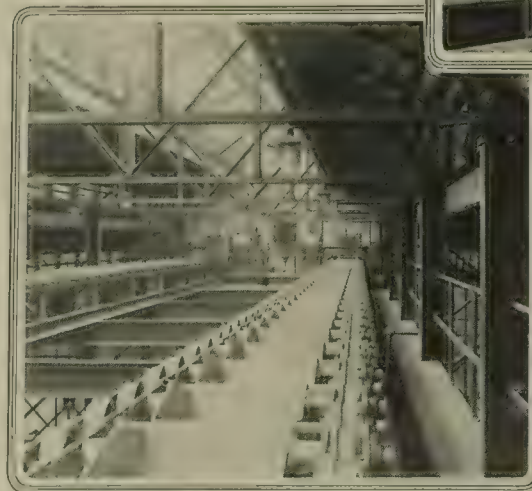
that the present doorways would not allow them to pass. There are also whisky-vats which have not been emptied for about half a century.

IF dealt with in detail, the history and the story of the work of the New Conveyor Company, Ltd., of Smethwick, Birmingham, would fill as many pages as there are words in this account. The work is perhaps best described as the manufacture of mechanical handling plant and all appliances for the transport of material. The Company have a world-wide reputation as conveyor, elevator, and automatic appliance specialists. Among the heavy plants turned out by them may be enumerated various kinds of elevators, spiral and push-plate conveyors, structural steel work, and a number of specialities relating to the most recent improvements in the mechanical handling of material. Their works at Smethwick are divided into departments, to each one of which are allocated various processes connected with some particular manufacture. The works are completely equipped with the most modern machinery for dealing with both large and small work comprised in the manufac-



A COAL AND ASH HANDLING PLANT.

This illustration shows part of the structural work and Band Conveyor at Electricity Station, Summer Lane, Birmingham, one of the most complete of its kind in the country.



A GRAVITY BUCKET CONVEYOR AT THE GREENWICH ELECTRICITY STATION.

carried out under the supervision of Mr. W. W. Squire. Every automatic device proved by experience to be desirable has been embodied in this installation, which is capable of handling four hundred tons of grain per hour with continuous working.

ture of crushers, picking-belts, gravity bucket, and other conveyors and elevators. Among recent contracts carried out by the Company may be mentioned the Coal and Ash Conveying Installation at Summer Lane Power Station, Birmingham, under the supervision of Mr. R. A. Chattock, Electrical Engineer to the Birmingham Corporation, and the Grain Handling Plant at the Royal Edward Dock, Avonmouth,

MENS SANA IN CORPORE SANO

BIRMINGHAM is famed for the broad and generous provision it makes for educational needs. That fame is based largely on the city's progress in the establishment of educational institutions for the study of science as applied to Midland arts and manufactures. But there is a lighter and more liberal phase. In Birmingham there are both colleges and schools in which homage is paid at the shrine of the Humanities as zealously as it is at the older Universities. Of these, in the region of feminine education, an excellent example is the Edgbaston High School for Girls, Ltd., which is pleasantly situated amid lawns and trees near the lower end of Hagley Road. This school was founded in 1876 by some Birmingham gentlemen (among them Mr. Chamberlain and the late Mr. George Dixon) for the purpose of educating their daughters. It is, as its title indicates, a limited liability company, but it differs from the usual type of company in that all profits are used for the benefit of the school itself. There is accommodation for about 220 pupils, and for some years past the school has been full or nearly so.

The school is conducted in accordance with modern educational principles. Natural Science and Political Economy, as well as French, German, Latin and Greek, figure among the subjects included in the course. Attention is paid in particular to English literature and to Modern Languages, which are taught by the oral method. There are, in addition, of course, music, drawing, painting, and other special subjects, usually described as "accomplishments." But it is the general cultivation of mind and character that is aimed at rather than the mere imparting of knowledge or a certain training in accomplishments. Importance is attached alike, says the School Prospectus, to physical development and training, to intellectual culture, and to the formation of character. The aim of the teaching is to educate

the powers of observation and reasoning, and to interest the girls in the work for its own sake. There is no award of prizes, and care is taken to avoid overwork. Physical exercises are a part of the daily routine, and out-door games are encouraged throughout the year.

There is a Boarding House attached to the school for pupils who come from a distance. The house stands high, in a healthy situation, next door to the High School, and the grounds include a large garden and tennis-lawn. The girls at the boarding-house, which is fitted up on very modern lines, come from all parts of the country. In the school itself is a new Gymnasium containing Swedish apparatus. There is a handsome Assembly Hall, and there is a Science Laboratory, which is being re-equipped. The head-mistress is Miss G. Tarleton Young, who has many academical distinctions to her credit. Miss Florence Daw presides over the school boarding-house. Expeditions are organised from time to time by the house-mistress, that the girls may enjoy the surrounding country and become familiar with places of historic interest in the neighbourhood. Hockey and cricket are regularly played in the school field, Chad Valley, under the supervision of games-mistresses. Each form has its own team which competes in the Upper School for a silver cup, and in the Lower School for a silver shield. Matches are also played with other schools. Tennis and rounders are played in the garden. Pupils are prepared for the

Oxford and Cambridge Joint Board and the Cambridge Higher Local Examinations, and are also entered for the Examinations of the Associated Board of the Royal Academy of Music, the Royal College of Music, and the Royal Drawing Society. The School also undertakes to prepare pupils for the Universities. The girls are thus not only well equipped for their life's voyage, but will be able to look back on their years at school as among the pleasantest they have known.



SOME OF THE YOUNGEST PUPILS PLAYING CRICKET IN THE GROUNDS OF THE EDGBASTON HIGH SCHOOL FOR GIRLS.

In the background is the school itself. The photograph shows also the Gymnasium, which contains Swedish apparatus (on the right).



IN THE SCHOOL: A LESSON IN MATHEMATICS IN THE LOWER FIFTH FORM ROOM.

IN THE PUBLIC EYE AT BIRMINGHAM.



1. MRS. H. V. MITCHELL,
Wife of Mr. Henry Mitchell, Chairman
of Messrs. Mitchells and Butlers.
2. MRS. C. G. BEALE,
Wife of Alderman C. G. Beale.
3. VISCOUNTESS MORPETH,
Wife of Viscount Morpeth, M.P.
4. MRS. SHAW,
Wife of J. F. Shaw, Esq., High Sheriff
of Warwickshire.
5. MRS. WILLIAM KENRICK,
Wife of the Rt. Hon. William Ken-
rick, P.C., J.P.

6. MRS. SAYER,
Wife of Alderman H. J. Sayer, Deputy
Mayor of Birmingham.
7. MRS. NEWBY,
Wife of Mr. J. G. Newby.
8. MRS. AUSTEN CHAMBERLAIN,
Wife of the Rt. Hon. Austen Cham-
berlain, M.P.
9. MRS. J. S. DUGDALE,
Wife of Mr. J. S. Dugdale, Recorder
of Birmingham.
10. MRS. HILEY,
Wife of Mr. E. V. Hiley, Town Clerk
of Birmingham.

11. MRS. BROOKS,
Wife of Councillor A. D. Brooks.
12. MRS. BAKER,
Wife of Alderman George Baker.
13. LADY LODGE,
Wife of Sir Oliver Lodge, F.R.S.
14. MRS. CADBURY,
Wife of Mr. George Cadbury.
15. MRS. MIDDLEMORE,
Wife of J. T. Middlemore, Esq., M.P.
16. MRS. E. PARKES,
Wife of Mr. E. Parkes, M.P.

17. LADY LOWE,
Wife of Sir Francis W. Lowe.
18. LADY STONE,
Wife of Sir Benjamin Stone.
19. MISS MARGARET B. HEATH,
Daughter of Dr. R. S. Heath, Vice-
Principal of Birmingham University.
20. MRS. JESSE COLLINGS,
Wife of the Rt. Hon. Jesse Collings,
M.P.
21. MRS. JOSEPH CHAMBERLAIN,
Acting Lady Mayoress of Birming-
ham.



CHAIRMAN OF THE ENTERPRISE:
MR. HENRY MITCHELL,
Of Messrs. Mitchells and Butlers.

and details of treaties which pass with the learned for history. He records that, at the conclusion of a State visit to Oxford, she rode out towards Headington Hill, and when she had reached the top she halted, and, looking back, blessed the learned city which lay below her. There and then she had a quart of ale, fetched from a neighbouring hostelry in a silver drinking-cup, and her gracious Majesty quaffed it to its last nut-brown drop. Elizabeth was militantly British, and she loved the liquor which for centuries before her reign had been the national

A CHRONICLER, with an eye to the enthralling interest of the personal touch worthy of a latter-day journalist, has bequeathed to us one of those intimate little glimpses of good Queen Bess worth all the dry-as-dust dates

from the cellars of Messrs. Mitchells and Butlers. It was just three hundred years after Elizabeth's royal drink on Headington Hill that Mr. Henry Mitchell founded what was to grow into an enormous and wonderfully conducted brewery. Twelve years later he secured the Cape Hill site, which to-day, with its sixty acres of superficial area crowded with the firm's buildings, has become famous as the headquarters of a vast business. In 1887 it was floated as a limited liability company with a subscribed capital of £1,000,000 and with himself as Chairman of the Board. In 1897, Messrs. Mitchell were joined by Mr. William Butler of the Crown Brewery, Broad Street, Birmingham, and the present firm of Messrs. Mitchells and Butlers, brewers, maltsters, wine and spirit blenders, came into being. As you approach the immense façade of the brewery, you are forcibly reminded of the saying that we are the thirstiest people on the globe. But your initial wonder deepens

when you pass beneath the great red stone archway and begin to realise the manifold activities which go to make the business of Messrs. Mitchells and Butlers a model of efficiency. You first make the acquaintance of a light and beautifully fitted office, where upwards of a hundred clerks work under the able and genial eye of the office-manager, Mr. Grant. Then you pass to a board-room that might be the parlour of the Bank of England itself. And then you find your way into an immense yard, where every kind of brewer's dray, float, covered van, or wagon stand ready

to take up their cargo of nut-brown ale. The artesian wells, which supply the water used, yield a supply of 50,000 gallons per hour; there is stabling for three hundred horses, which consume 60,000 lb. of fodder a week, all of which is cut up on the premises; the output of the brewery during a normal week is something approaching 400,000 gallons. The spirit-stores you will presently visit are nearly an eighth of a mile in length. Then you pass on to visit the firm's fire-brigade, a volunteer brigade of



READY FOR WORK: THE FIRM'S FIRE-BRIGADE.

exceptional smartness, which has won the national shield on more than one occasion (the last in record time on July 9th of this year), and, taken many valuable prizes, and to inspect the apparatus of the firm's own ambulance corps, before you seriously start on the inspection of the brewery. In passing to the pumping-room you see a



A PROOF OF THE SIZE OF THE BUSINESS: IN THE LOADING-YARD.

drink. One can be sure that the draught on the hill above "the city of scholars" was what was in those days known as "double broth"; and the most keen of ale-conners, those officials appointed in every court-leet "to look to the assize and goodness of ale and beer," would have found naught to grumble at in the brew. It is not so many miles from Oxford to Birmingham, and one can fancy that if she had but lived three centuries later, such a connoisseuse of a good brew would have made a detour to the capital of the Midlands and thought herself well rewarded by a draught



BARLEY A FOOT DEEP—195 QUARTERS ON A FLOOR: A MALTING-FLOOR.

"The malting-floors are a wonderful sight, the barley lying a foot deep—195 quarters on a floor. Men in rubber pumps are kept constantly at work turning the grain, which lies some ten days till each grain puts forth little roots like those on a seedling potato."

neat contrivance, a float washing pit, fitted with counter-balance weights, into which the wagons are lowered and cleansed. In the largest pumping station water is raised to the surface by compressed air, at the rate of 30,000 gallons per hour, from a borehole 15½ inches in diameter and 568 feet deep. Then you inspect the malt-kiln furnaces, to which is attached a simple but effective



THE MAKING OF "WORT": A CORNER OF THE MASHING-ROOM.

"The malt is drawn from the store-bins by a wonderful system of Archimedian screws . . . thence to the mill-room, where it passes between chilled-steel rollers and, as grist, is thoroughly mixed with water at a particular temperature by means of a mashing-machine. Falling into the mash-tun, the malt starch is converted into malt sugars. After standing, this malt extract, or 'wort' as it is technically called, is drawn off into coppers."



"THE ROCKY HEAD:" AN EARLY STAGE IN THE FERMENTATION.

"Into fermenting-vessels, very costly because copper-lined, runs the cooled wort, and here the yeast is added and fermentation begins, the speed of the process being regulated by a neat system of attenuating pipes. There are no fewer than eighty-two of these copper-lined vats at Cape Hill. . . . The yeast is stored in vats, all of slate to ensure coolness. At a special moment in the fermentation process the liquid passes into other vessels, each holding 200 barrels."



READY FOR PLAY: THE BOWLING-GREEN.

device automatically controlling the heat to which the drying grain is submitted, and also learn that only the finest quality Welsh anthracite coal is used, as this gives off no impure products of combustion which might taint the grain. The malting floors are a wonderful sight, the barley lying a foot deep, there being 195 quarters, or



STOPPING THE ROOTING PROCESS AND DRYING THE GRAIN: A MALT-DRYING KILN. "—Then it is ready for the kilns, where the rooting process is stopped and the growth checked, the products of germination thus being saved for the brewer. On the kilns the grain stays some seventy-two hours, until it is all crisp and dried."

87,360 lb., on each floor in one of their many malthouses. Men in rubber pumps are kept constantly at work turning the grain, which lies some ten days, till each grain puts forth little roots like those on a seedling potato. Then it is ready for the kiln, where the rooting process is stopped and the growing activity of the grain checked, the products of germination being thus saved for the brewer. On

the kilns the grain stays some seventy-two hours, until it is all dried and cured, smelling like newly baked biscuits, and then it is shot down four small shoots into a Bobby's Dressing-machine, which separates the rootlets and extraneous matter. The grain is then automatically weighed and elevated by band-conveyers to store-bins. Now enter upon the scene, the hops. The hop-room is filled with the wonderfully packed pockets of hops, which are daily delivered there from the firm's extensive Hop Cold Storage, which is maintained all the year round at freezing point to retain in the hop under storage conditions its natural maximum preservative properties and delicacy of aroma. The malt is drawn from the store-bins by a wonderful system of Archimedian screws and elevated into hoppers commanded by automatic weighing and recording machines. Thence to the mill-room, where it passes between chilled-steel rollers, and, as grist, is thoroughly mixed with water at a particular temperature by means of a mashing-machine. Falling into the mash-tun, the natural starch of the malt is converted into malt sugars. After standing, this malt extract, or "wort," as it is technically called, is drawn off into coppers, any residue clinging to the grist being washed out by a fascinatingly clever contrivance, the "sparger," which, spinning round above the mash-tun, sprinkles hot water in a fine shower over the contents. In the coppers, the hops are added and the whole boiled. The resulting mixture now passes into hop-backs—vessels specially designed to keep the hops back from the boiled wort, the hops being retained by the false bottom, while the bright wort, filtering through, is pumped up to the coolers, where aeration and settling take place. Then come the refrigerators, fitted with a series of hard-drawn copper tubes. The total cooling capacity is 7200 gallons, or 200 barrels, an hour each set. Then into fermenting-vessels (very costly, because copper-lined) runs the cooled wort, and here the yeast is added and fermentation begins, the speed of the process being regulated by a neat system of attemporating pipes. There are no less than eighty-two of these copper-lined vats at Cape

Hill, the yeast of which brewery is known all over the country, other brewing firms buying from them. The yeast is stored in vats, all of slate to ensure coolness. At a special moment in the fermentation process the liquid passes into other vessels, each holding 200 barrels, in what is called the cleansing-room, and here the yeast rises to the surface and is skimmed off by parachutes, falling back into the slate storage-vats. The elaborately prepared liquor is now beer, and is transferred to racking-backs, vast rectangular-shaped vessels, each with a capacity of 250 barrels and copper lined, their object being to serve as a means of transferring the beer to the dispatch-casks free of any sedimentary matters from the fermenting-vats. Each racking-back has a



VICE-CHAIRMAN OF THE ENTERPRISE: MR. WATERS BUTLER, Of Messrs. Mitchells and Butlers.



A PROOF OF THE SIZE OF THE BUSINESS: THE CAPE HILL BREWERY.

series of taps by which casks can be filled quickly and in an absolutely cleanly manner. The filled casks now go to the beer-stores, consisting of nearly half-a-mile of cellaring. There are other processes to see, such as the bringing of the beer into high condition by means of running it into glass-lined steel tanks and reducing to a low temperature; the bottling departments with their manifold activities; and, last but not least, the great wine and spirit stores, recognised as one of the finest of its kind in the United Kingdom.



ONE OF THE FINEST IN THE UNITED KINGDOM: THE WINE AND SPIRIT STORES.

These magnificent stores for convenience and capacity compare very favourably with the finest in the United Kingdom. They are comprised of three floors, each thirty feet wide by four hundred feet in length, and are capable of accommodating one hundred thousand gallons; the spirits are stored in handsome oak casks each containing about seven hundred gallons, in which the contents are blended by a clever electrically driven contrivance. Powerful electric lifts connect the various floors.



THE LAST OF THE MANY PROCESSES: FILLING CASKS OF BEER.

"The elaborately prepared liquor is now beer, and is transferred to racking-backs, vast rectangular-shaped vessels, each with a capacity of 250 barrels and copper lined, their object being to serve as a means of transferring the beer to the dispatch-casks free of any sedimentary matters from the fermenting-vats."

THE AGE OF ELECTRICITY.

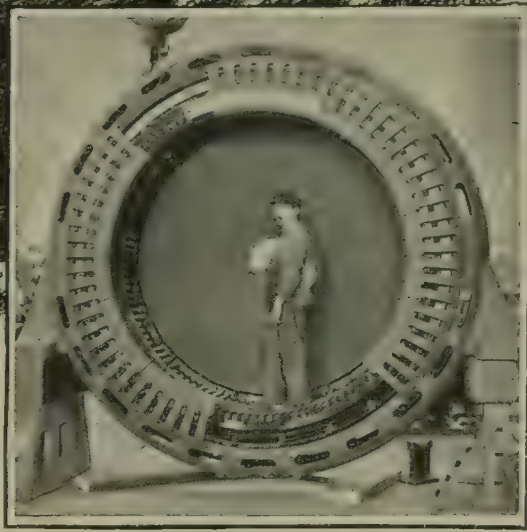


A GIANT OF THE AGE OF ELECTRICITY:
A 1000-K.W. ALTERNATOR.



COVERING OVER A HUNDRED ACRES OF LAND: THE GENERAL
ELECTRIC COMPANY'S WORKS AT WITTON.

The engineering-shops, which form the largest of the three works, consist essentially of a foundry, machine-shops, and a test-room. Starting from the foundry, where the dynamo and motor shells are cast, one can follow the process of manufacture by which the raw iron and copper are converted into the finished machine. As the castings leave the foundry they pass into the machine-shops. Broad and narrow gauge railways, running throughout the shops, and three large overhead motor-driven cranes, capable of lifting up to thirty tons, facilitate the transport of the material. The smaller machines are driven from shafting, the larger by independent motors. Thus in one place may be seen a huge boring-mill capable of turning machines up to 24 ft. in diameter, self-contained, with its 15-h.p. Witton driving-motor mounted on the pedestal. Elsewhere are large planing, slotting, and drilling

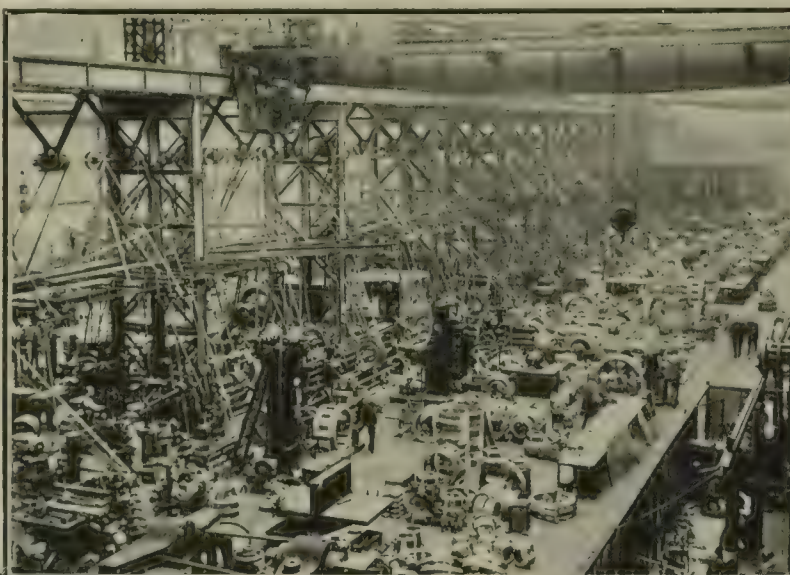


A GIANT OF THE AGE OF ELECTRICITY: THE SHELL
OF A 1000-K.W. ALTERNATOR.

It has become almost a commonplace to say that the twentieth century is likely to be known as the age of Electricity. But the ordinary citizen taking his customary ride in a brilliantly lit electric tram, or communicating, as though face to face, with a distant friend through the medium of the telephone, realises but dimly the organisation and equipment required to supply him with these luxuries that have taken rank as necessary accompaniments of civilised life. Some idea of the magnitude of a concern capable of supplying no small share of the electrical needs of the community is obtained from a visit to the General Electric Company's works at Witton. A great tract of over a hundred acres of land already largely covered by buildings; spacious and well-lighted halls filled with the busy hum of powerful machines; the brilliant glow of molten metal as it runs from the cupola into the mould; all these and the many familiar sounds and sights of an energetic factory life create the impression of an undertaking of great magnitude. It is with surprise that the visitor learns that the factory at Witton is only one of the many works of the General Electric Company, and that this company, which, in the past twenty-

machines, similarly equipped. On one side of the shop an accurately levelled tool-bed, covering a large portion of the floor, enables the tools to be brought to the work in place of the work to the tools, the more usual method. Thus a large shell once set in place can be operated on by various machines either simultaneously or in turn, and much transport is avoided.

Especially interesting are the shops in which shafts are ground accurately to the two-thousandth part of an inch; in which the armatures are built up from stamped sheets of iron, and the coils of copper wire, already bent to the proper shape, are laid in the armature-slots and connected together; in which the various tools required for the different machines are made with the utmost refinement of accuracy; and in which the switchboards are assembled, in their harmony of bright metal and polished marble gratifying alike to the aesthetic sense and the engineering eye. In the test-room each machine passes through a searching examination into its efficiency and the soundness of its workmanship before it is handed over to the purchaser. This is so arranged that any machine—from the little $\frac{1}{4}$ -h.p. motor, which can be carried in one hand, to the gigantic 3000-k.w.



five years, has advanced, under the chairmanship of Mr. G. Byng, into the front rank of electrical manufacturers, owns other factories nearly as large in Manchester and London, and a selling organisation which spreads, not only throughout this country, but over the world. Employing, as the Company does, nearly six thousand people, it is, roughly, only a third of this number that is quartered at Birmingham.

The Witton works are situated three miles from the centre of Birmingham, in close proximity to the railway and the Thame Valley Canal, the latter running across the estate. They comprise engineering-shops for the manufacture of dynamos, motors, and switch-gear, conduit works for the manufacture of the steel tubing in which electric-light mains are run; and carbon works, the only ones of their kind in the Empire, at which arc-lamp carbons and primary batteries are produced. All the machinery is driven by electric motors. The power is generated by the Company itself in a centrally situated power-house having a maximum output of 2000-k.w., obtained from two 500-k.w. generators driven by reciprocating engines, and a 1000-k.w. steam turbine set running at 1800 revolutions a minute. Overhead transmission lines carry the current to the separate works and to the numerous arc-lamps on the estate.



1. ONE OF THE GREAT WORKSHOPS—A GENERAL VIEW. 4. BAKING-OVENS IN THE CARBON
2. THE TEST-ROOM IN THE ENGINEERING-SHOPS. WORKS.
3. A MOULD FOR THE CASTING OF A DYNAMO SHELL. 5. CUTTING STEEL BARS.

"In the test-room each machine passes through a searching examination. . . . This is so arranged that any machine—from the little $\frac{1}{4}$ -h.p. motor, which one can carry in one hand, to the gigantic 3000-k.w. generator, many times taller than a man—can be tested with a minimum loss of time and 1-hour in erection."—"The Witton Works . . . comprise . . . carbon works, the only ones of their kind in the Empire, at which arc-lamp carbons and primary batteries are produced . . . the arc-lamp carbon is manufactured from such apparently unpromising materials as gas-retort carbon, soot, and tar."

generator, many times taller than a man—can be tested with a minimum loss of time and labour in erection.

Only a word can be said in reference to the conduit works, where one would gladly linger to watch the red-hot strips of iron issuing in rapid succession from the furnace, and being as rapidly fashioned into tubes. Similarly brief must be the account of the carbon works, where, by the aid of heavy hydraulic machinery and a long range of white-hot furnaces, the arc-lamp carbon is manufactured from such apparently unpromising materials as gas-retort carbon, soot, and tar. In view of the importance of this industry to the national welfare, the General Electric Company deserve special commendation for establishing it in the teeth of severe foreign competition. The electric searchlight has become an essential part of modern naval equipment, and but for the Witton works the Admiralty might be dependent, even in the time of war, on foreign supplies.

As the visitor, passing from the factories, sees the rows of workmen's cottages, the club house, the allotments, and the fine football and cricket field, he realises that the directors have not been unmindful of the social side of their employees' life, and may well indulge in the reflection that this thoughtfulness must have helped them not a little to attain for the Company the position it now holds.



THE MAN BEHIND THE WINDOW-DRESSER.

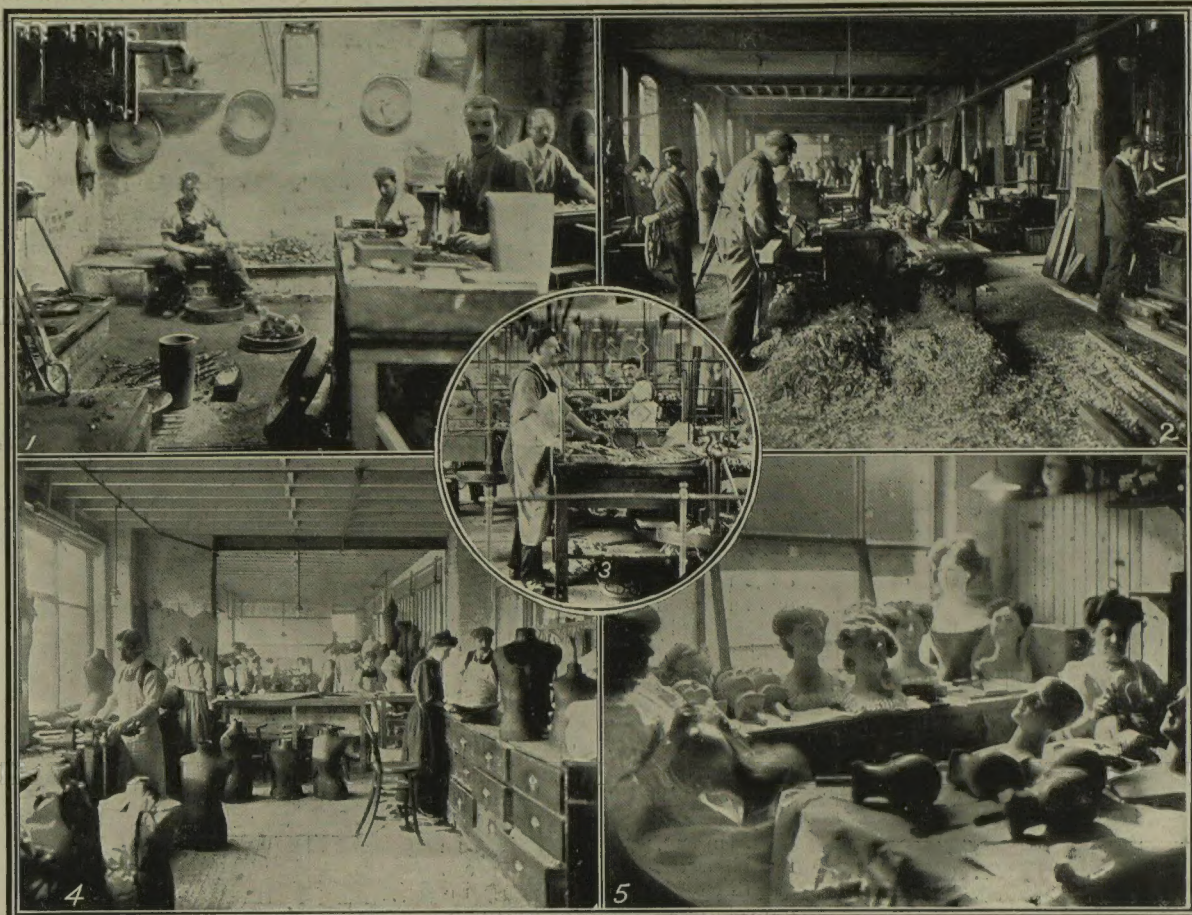
THERE are many curious professions of which the ordinary man seldom if ever hears. For instance, there is that of tea-taster, in which anyone with a sufficiently delicate palate can earn a four-figure income. Again, there is the shop window-dresser, who is worth a big salary if he be an expert. But he is useless unless he has behind him those who have made a science of shop-fitting, and are specialists in the all-important matter of impressing the public. Of all the shop-fitters none are more deservedly famous in trade circles than Messrs. Harris and Sheldon, of Birmingham. When you realise that they make the magnificent heavy mahogany carved-bank-counter or the delicate little metal clips upon which jewellers display diamond rings—will undertake to build you the largest shop-front or the tiniest of velvet-lined jewel-cases—you can measure the comprehensive nature of their business. — Your first impressions as you stand in their show-rooms are those of bewilderment at the manifold needs of the shopkeeper before he can start to attract the buyer. Telescope knife-stands, toothbrush-racks, door-handles in brass, ebony, or what not, parasol holders, pipe-brackets, umbrella-sockets, marble stands for grocers, glass sandwich or cake covers for buffets, the trying-on stools of bootmakers, boot-brackets, contrivances for hatters, for tailors, confectioners, drapers, facias in gilt or glass, swing signs, designs for mosaic pavements: these are just a few of the medley of clever exhibits you come across as you walk round.

Everyone is catered for, everybody's needs are understood; no shopman can know what he wants as do Messrs. Harris and Sheldon, who have made an art of it all. For art it is, and art, too, of a very high order. You think this more than ever when you mount to the bust and wax-figure modelling departments.

Here are made every conceivable type of dress-stand, those queer, headless, lay figures on which dressmakers drape dresses. Still more picturesque are the wax-head modelling-rooms. Here you feel as if you were behind the scenes at a pantomime, and were assisting at the preparations for some blood-curdling scene in "Blue Beard."

These heads are really wonderful: made of white wax, and then coloured with the glow of life and health. In the illustrations something of these processes can be seen; and it is marvellous how quickly the girls with deft fingers fix in the hair on bald heads and give silky lashes to the pretty, lustrous eyes.

In the timber departments there are large stacks of timber maturing, and you see the various productions of this section in the several stages of manufacture. This work comprises show-cases, counters, shop-fronts, fixtures, and, in fact, everything for the complete equipment of shops and stores. Turning over the testimonial-book, you realise that the retail trader knows what he owes to Messrs. Harris and Sheldon, Ltd., who can boast of being the largest manufacturers in the world of brass shop-fittings, and also undertake the actual designing of shop-fronts, and the planning of business premises in every detail. They can show some most capable elevations and plans drawn to scale by their draughtsmen, referring to contracts which they have carried out or submitted to possible customers. They are also very successful in their work at Exhibitions, and make a speciality of the fitting-up of Museums. They have a show-room in London, at 70, Wood Street, E.C.



1. IN THE METAL-CASTING SHOP.

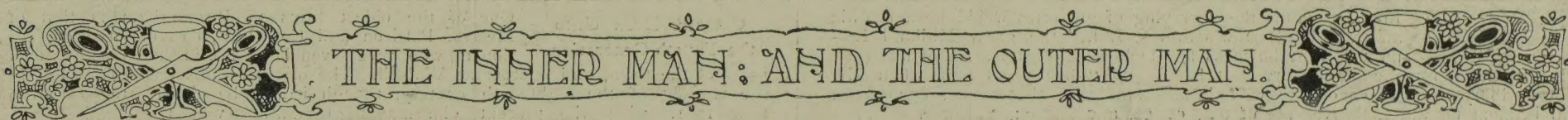
4. MANUFACTURING FIGURES AND BUSTS FOR DRESSMAKERS AND WINDOW AND SHOP DISPLAY PURPOSES.

3. ONE OF THE SHOPS IN WHICH BRASS-FITTINGS, AND SUCH-LIKE, ARE PRODUCED.

2. A MILL WITH WOOD-WORKING MACHINERY.

5. MAKING WAX HEADS FOR TAILORS' AND MILLINERS' DUMMIES.

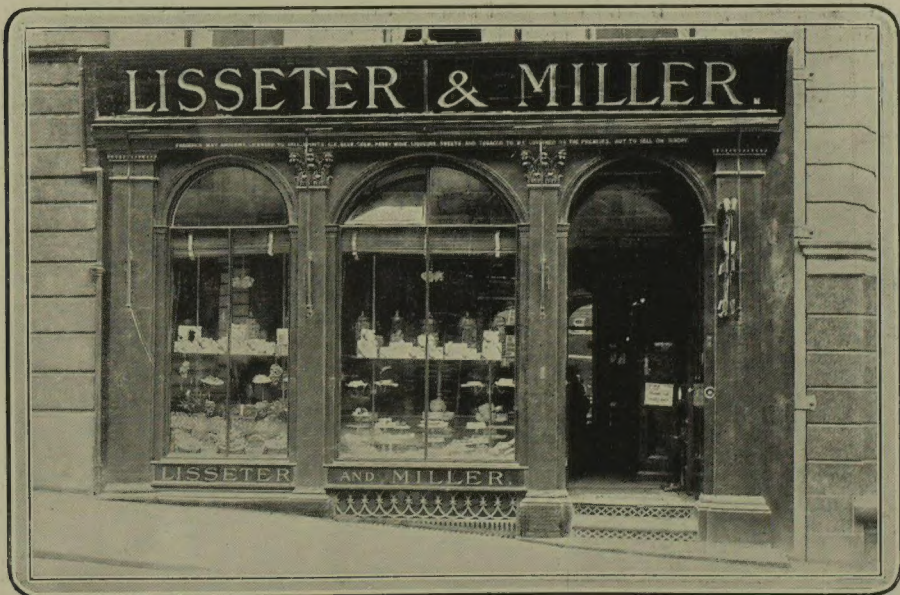
THOSE WITHOUT WHOM THE WINDOW-DRESSER IS USELESS: MAKERS OF SHOP-FITTINGS.



THE INNER MAN: AND THE OUTER MAN.

DURING the visit of the King and Queen to Birmingham, the catering at the banquet and other functions attended by the royal guests was in the hands of Messrs. Lisseter and Miller, refreshment-contractors, of Bennetts Hill, Birmingham. This firm has a high reputation, founded on a record of fifty years, during which it has contracted for nearly every important function that has taken place in Birmingham. — A floating population forms a sure foundation on

ON the whole, perhaps, the most interesting street in Birmingham is New Street, which runs westward up to the fine Town Hall, and eastward towards the cheerful Bull Ring. Within its short extent it offers not only the merchandise, but the graces of life. In it are some of the best retail establishments in the city. Standing at one corner is the building occupied by Messrs. Scruton and Co., an old-established firm of tailors and shirt-makers, who are responsible for the



THE SATISFYING OF THE INNER MAN: MESSRS. LISSETER AND MILLER'S.

which to build a great restaurant business; and of the floating population of Birmingham most of the best elements usually find their way to "Lisseter's." But outdoor catering is the strong business of this firm, and in that respect they need not fear comparison with any firm in London. In respect to this branch of their business they are universal providers, and are able to supply everything from a stately toast-master to an ice wafer. Some notable feats have been performed by the firm in that way. The firm has been under the present proprietor, Mr. Andrews, twenty-eight years. Messrs. Lisseter and Miller have had an extensive experience in the organisation of every variety of entertainment, and the resources of their establishment are sufficient to enable them to undertake the carrying out of the arrangements either for small private gatherings or public functions on however elaborate a scale.



THE SATISFYING OF THE OUTER MAN: MESSRS. T. K. SCRUTON'S.

accoutrements of many well-groomed men in Birmingham. That is one of the things, perhaps, in which Birmingham scores over London. The clothes turned out by this New Street firm of tailors are equal in style and make to those of London outfitters of great repute. Yet the difference in prices is very marked. This fact requires to be dwelt upon because there are a good many who detect "provincialism" in everything that comes out of any place but London. Round Colmore Row and New Street in Birmingham the people are as well and as fashionably dressed as in Piccadilly and the Strand, even though the silk hat is not so much in evidence. Here is a firm of tailors which, according to report, not only executes perfect work for clients in the Midlands and all parts of the provinces, but has customers in London. That fact will open the eyes of a good many people, and seems to show that London is not the absolute arbiter in fashions for men that many people have assumed it to be. Shirt-making, hosiery, foreign and colonial outfits are also a large branch of the business of this old-established firm.

BUSINESSES OF BIRMINGHAM: FOUR EXAMPLES.

Makers of Gold Chains.

The business of Messrs. John Goode and Sons, Gold Chain Makers, of Regent Place, Birmingham, was established eighty years back, and the firm is one of the oldest of its kind working in the capital of the Midlands. In their workshops some of the well-known chain-makers have gained their first experience. From small beginnings, when George IV. was still King, the business has grown to a world-wide one. You gain an idea of the turn-over of metals in Regent Place when the manager tells you that as much as £2000 a year is paid to Messrs. Goode by refiners for merely their shop-sweepings and polishings. They are proud of the fact that at least twenty-five of their work-people have been in their employ for periods ranging from twenty to fifty-six years, the length of service of the four oldest hands totalling two hundred and two years. Here the visitor can see the whole process of chain-making, from the moment when, in the counting-house,



LAPPING A LADY'S LONG GOLD CHAIN.

the glistening grains of gold are weighed out, to the moment when the newly made Albert watch-guard lies in its velvet-lined case ready for the jeweller's shop. In one department, for instance, are the gilding solutions, vats filled with a gold



THE MAKING OF GOLD CHAINS: POLISHING.

There is comparatively little machinery in jewellery work, and some of the tasks daily performed in Regent Place are marvels of dexterity and patience. At the polishing-machines the chains are made to shine with an attractive brightness.

solution, with a pure gold plate hanging in it. This gold plate feeds the solution, the electric current which passes through the solution being supplied by a dynamo. Further on lockets and medals ornamented with crests or what not are being engraved to hang on to the chains. Messrs. Goode have in recent years extended their business to include jewellery work of all kinds.

A Great Midland Emporium.

In most hands the purveying of groceries would be a prosaic affair. In "Barrow's Stores, Ltd.," the great Midland Emporium, that business has mellowed into an art and has been endowed with a romance of history. It began eighty-five years ago, when Mr. John Cadbury, a member of the well-known family of that name, opened an establishment for the exclusive sale of tea, coffee, and cocoa; and it has grown day by day and year by year, and general groceries have been added to its goods. In 1903 and 1904, the whole of the premises in Bull Street and Corporation Street were rebuilt, redecorated, and enlarged. A café was opened on the first floor, and soon became a favourite Birmingham resort. In 1906 the business of John Sumner and Son, founded in 1756, was purchased, and at the present



THE GROCERY BUSINESS AS AN ART: BARROW'S STORES CORPORATION AND BULL STREET PREMISES, PART OF A GREAT MIDLAND EMPORIUM.

The business began eighty-five years ago, and Mr. John Cadbury, a member of the well-known family, was the moving spirit in it. Development has followed development until the present great firm has resulted. It attracts customers from a radius of twenty miles or more, and everything is done to make the business of shopping a pleasure.

time the dispatch department is being extended, a new show-room is being made, there are to be new smoke-rooms, while writing and other rooms are to be connected with the café. Added to these are to be a reconstructed basement for the ripening and display of fresh fruit, a coffee-roasting room equipped with new machinery and open to visitors, and a new tea-mixing and packing room, where the teas will be blended and measured by electric machinery. Such, in outline, has been the growth of this great Midland business, to which customers flock from within a radius of twenty miles. Within and without it is a rare example of union between commerce and art. Order and method, smoothness and efficiency, mark every detail of organisation.

The Sinking of Dies: and the Making of Medals.

Away behind Pitsford Street, Birmingham, in a venerable and rambling building that might have been transplanted from some picturesque corner of Venice, a father and son may day by day be found plying a craft in which that son's grandfather made a great name. Joseph Moore is the title retained by the firm, and die-sinking and the making of medals are the arts that form its staple business. In an oblong room, well open to the light, intent workers are seen tracing the pattern on their dies. The dies themselves are of the hardest steel, and the designs are cut into their surface by finely edged chisels. When the die has been cut the medals are struck off by means of stamping machines and medal presses worked by hand or electricity. Medals six inches in diameter are sometimes turned out, and these in the process of stamping require tremendous pressure, the necessary blow being dealt by a hammer impelled in its descent by a huge revolving fly-wheel. Some medals, again, are no larger than a threepenny-

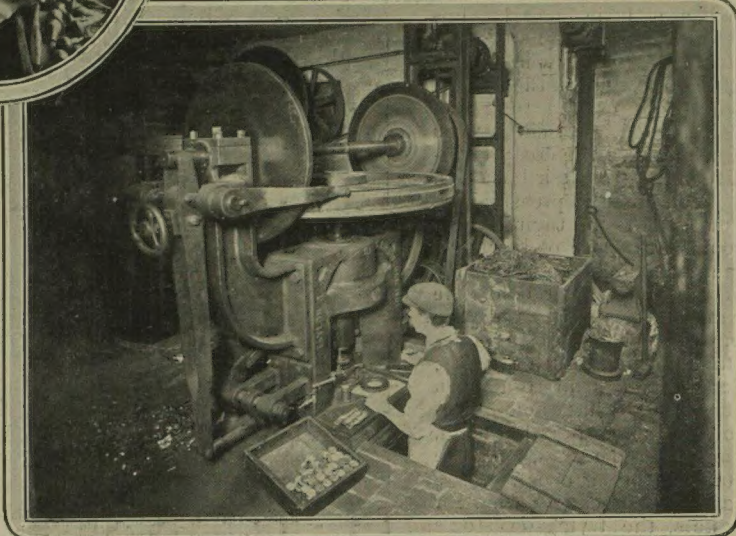


THE DIE-MAKERS: ENGRAVING.

The dies are of the hardest steel, and the designs are cut into their surface by means of finely edged chisels. At times it is necessary for an expert die-sinker to spend months on the cutting of a die that is no larger than a shilling.

bit and require a pressure that is a mere feather-weight in comparison. Other operations are clipping and polishing, enamelling, soldering, and filing-up generally.

This firm of die-sinkers has been at the same address, 13, Pitsford Street, for over half a century, though new wings have been added during that period. In a craft of this sort the human hand is never likely to be superseded, but on the premises here are two reducing-machines at work, by means of which artists' models in plaster or another material are reproduced on a smaller scale with extraordinary fidelity.



THE MEDAL-MAKER: STAMPING.

The man shown is striking off medals by means of a special press that is driven by electricity. Tin and aluminium receive an impression from a single blow. Gold and silver blanks, being so much harder, call for repeated stamping and annealing.

Caterers Even Unto the Fourth Generation.

One of the oldest firms in Birmingham is that of Messrs. Pattison and Co., Ltd., caterers and confectioners, who have seven large establishments in various parts of the town, and another at Walsall. The origin of this business is lost in the twilight of the eighteenth century, though it can be clearly traced to the year 1791, when the present chairman's grandfather was the head of it. Through all those years it has remained in the Pattison family down to the fourth generation. The head office is in High Street, though the largest establishment is in that fine new thoroughfare, Corporation Street. Messrs. Pattison are the originators of the far-famed "Farthing Buns," and are noted throughout the country for their high-class confectionery and catering trade. The



A BUSINESS THAT BELONGS TO THE ORIGINATORS OF "FARTHING BUNS": THE CORPORATION STREET BRANCH OF MESSRS. PATTISON AND CO.

The New Street Branch of this firm was started by the father of the present chairman, who set out to supply goods to the stage coaches that ran between London and the North. The original "creations" of the concern include the Farthing Bun and the Jubilee Bun, both famed. The business has been in the hands of the same family for four generations, a record of which any might be proud.

shop in New Street was started by the father of the present chairman, when he was under twenty, to supply the stage coaches going between London and the North. Long after its establishment it used to open regularly at four in the morning, when the coaches started from the Hen and Chickens, the old and now modernised tavern. The same Mr. Pattison started with his own hands the large sweet-making business the firm used to have at Spring Hill. Before which he was in the habit of travelling the country by coach, taking the orders, and going back to High Street to make the goods. "Pattisons" are one of Birmingham's institutions, and a great deal of their prosperity is due to the alert way in which they have met the modern demand in large cities for cafés of a semi-Continental type.

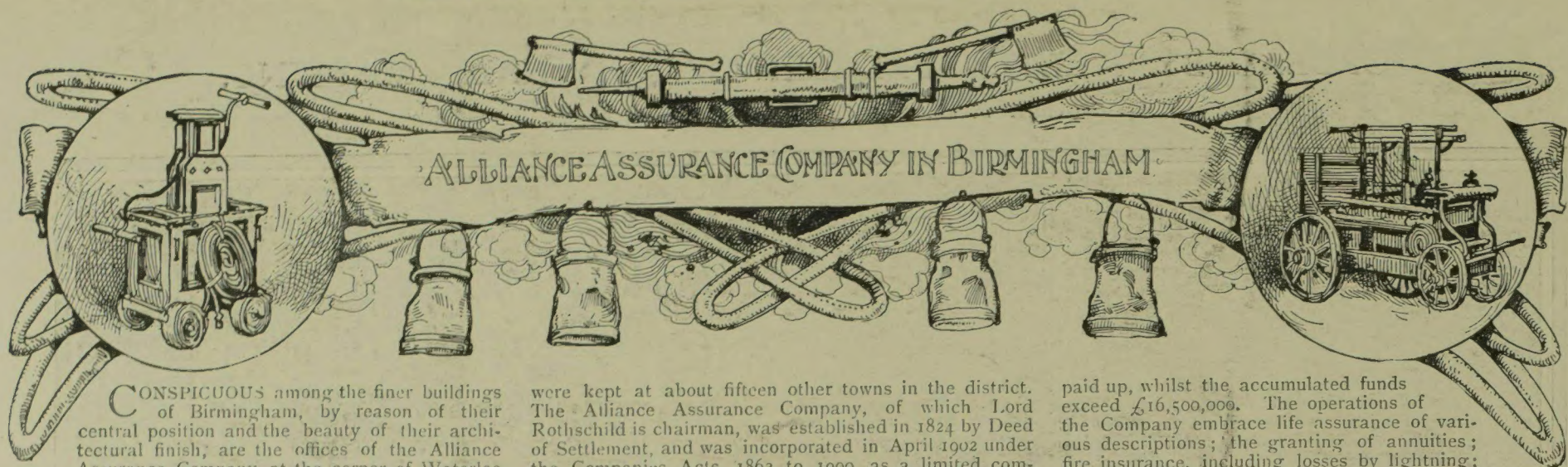
ORDEAL BY FIRE: A PRELIMINARY TO HALL-MARKING.

DRAWN BY S. BEGG, OUR SPECIAL ARTIST IN BIRMINGHAM.



FURNACES THAT ARE FED WITH SIXTEEN MILLION GOLD AND SILVER "PIECES" A YEAR: IN THE BIRMINGHAM ASSAY OFFICE.

Spoons, &c., come to the Assay Office in the rough, so that a small piece can be readily removed from each article for assaying. The sample is weighed in a balance that the thousandth part of a grain will turn. Then it passes through the furnace and is refined. The residue, that is (in the case of silver articles), the pure silver, is then weighed again, that it may be seen whether the alloy in the sample was correct. Gold has to pass yet another ordeal. After they have been taken from the furnace, the samples are boiled in nitric acid contained in platinum boilers. Re-weighing follows. Sixteen million gold and silver articles pass through the furnaces of the Birmingham Assay Office each year. The Birmingham hall-mark is an anchor; London's is a leopard's head within a shield; Chester's, three wheat-sheaves and a dagger; Dublin's, a figure of Hibernia; Edinburgh's, a castle; Glasgow's, a tree, fish and bell; Sheffield's, a crown. In our illustration the furnaces for silver are at the further end of the row.



CONSPICUOUS among the finer buildings of Birmingham, by reason of their central position and the beauty of their architectural finish, are the offices of the Alliance Assurance Company, at the corner of Waterloo Street and Colmore Row. The Alliance building, which

was erected in 1904, is in the later English Renaissance style, rising firmly and gracefully from a base of polished Norwegian granite, which is a good foil to the lighter-coloured Portland stone of the exterior walls and the clock-tower above them. Noble in harmony of form and detail as the building is without, the interior aspect strikes the eye as still more effective in its fine simplicity. Here the walls are clothed throughout in Pavanazzo marble, the veining traversing a field of pure white; while the dado and screens, as well as the office fittings, are in dark Honduras mahogany. The ground floor accommodates the staff.

The Alliance Assurance Company has played a part in the commercial history of Birmingham for well-nigh half a century. Before the opening of its offices at 130, Colmore Row, it had occupied premises in New Street for forty years. That went back to the time when it bought up the District Fire Office in 1864. Corporation Fire Brigades were, prior to that date, unknown in Birmingham and most other large towns, and insurance companies had often to keep their own fire-engines. It thus came about that when the Alliance Assurance Company took over the business of the District Office, it found itself in possession of fire brigade and engines all complete. Later, the Company presented the old fire-engines to the Birmingham Fire Brigade, and they now rest in Upper Priory, in charge of Superintendent Tozer.

The old District Fire Office was one of considerable local influence, and many of the leading citizens were connected with it as directors, or otherwise. The late Mr. William Middlemore, a great philanthropist in his day and father of one of the present Birmingham Members of Parliament, was a director for some years. Mr. Morris Banks, Mr. William Harding, Mr. Clement Heeley, Mr. Samuel V. Horton, and Mr. William M. Warden were also associated with the office as directors; and, along with Mr. Middlemore, continued their services with the Alliance after the amalgamation took place.

The fire equipment of the old District Fire Office was always kept in a state of real efficiency both in regard to material and men. Every new invention likely to add to the value of the engines and their accessories was put to the test as it appeared, and rules and regulations of a semi-military character were followed by the brigade. The engines and general fire equipment were originally kept at the old offices in Cannon Street, and were later installed at New Street, when the office took up its quarters there. Mr. J. H. Wright, the then secretary, acted for many years as captain of the brigade, and was quite a local celebrity in his day. He was succeeded in the secretaryship by Mr. David Adams, who has carried on the management of the branch since 1885. There were four engines stationed at the Company's Offices in New Street, and, in addition, engines

were kept at about fifteen other towns in the district. The Alliance Assurance Company, of which Lord Rothschild is chairman, was established in 1824 by Deed of Settlement, and was incorporated in April 1902 under the Companies Acts, 1862 to 1900, as a limited company. The affairs of the Company are regulated by

paid up, whilst the accumulated funds exceed £16,500,000. The operations of the Company embrace life assurance of various descriptions; the granting of annuities; fire insurance, including losses by lightning; marine insurance; workmen's compensation;

personal accident and disease; third party and driver's risk policies; motor-car and lift insurance; plate-glass, hail-storm, burglary and larceny insurance, together with fidelity guarantees, the granting of leasehold investment and capital redemption policies, whilst the Company also undertakes the duties of trustee and executor.

The negotiations which led in the early 'sixties to the amalgamation between the Alliance and the old District Fire Office in Birmingham, as in other towns, were conducted by the present General Manager of the Company, Mr. Robert Lewis. That amalgamation had its effect both on the business of the Company and on the general commerce of Birmingham, with which it is entwined. There are few districts in the world where the principles of assurance were likely to take more kindly to the soil than the region in and around Birmingham, with the vast scale and multiplicity of its industries. Nor could there have been any company more suited to the needs of Birmingham than the Alliance, which has ever been remarkable for the readiness with which it considered new ideas and for the energy with which it developed and made use of them when persuaded of their soundness. To that feature of its business may be in a measure attributed its splendid position in the commercial world of Birmingham—a position typified in the concrete by the beautiful pile in which it is housed, which overlooks the noblest thoroughfare in the city, and stands, cheek by jowl, a fit associate in firmness and dignity with the great civic palaces that are the pride of Birmingham's citizens.

The rates of premium and the conditions of assurance in the Alliance Company for all classes of business are favourable to the insured. The existence of branch offices in various parts of the kingdom with officials of experience at each office supplies the means of enabling persons to have their insurance business transacted with promptitude, and

with a minimum amount of trouble to themselves. At the Company's offices there are surveying clerks available for the inspection of risks, with a view to the quotation of rates of premium and for the purpose of preparing the necessary specifications for policies. The Company purchases and makes advances on reversions and life interests.

Special forms of policies have been prepared by the Alliance providing for the payment of death duties, thus avoiding the necessity of disturbing investments at a time when it may be difficult to realise without loss. Under the provisions of the Act, income tax is not payable on that portion of the assured's income which is devoted to the payment of premiums on an assurance on his life. Having regard to the amount of the tax, this abatement (which is limited to one-sixth of the assured's income) is an important advantage of life policy-holders.



ONE OF BIRMINGHAM'S MOST BEAUTIFUL BUILDINGS: THE ALLIANCE ASSURANCE COMPANY'S OFFICES.

Act of Parliament, and also by laws and regulations passed by the shareholders. The Company has an authorised capital of £5,450,000, of which £1,000,000 is

kingdom with officials of experience at each office supplies the means of enabling persons to have their insurance business transacted with promptitude, and



BUSINESS IN FULL SWING: IN THE ALLIANCE ASSURANCE COMPANY'S OFFICES.